



PIONEER®
The future of sound and vision.

Service Manual

• KEX-M700SDK/WG



ORDER NO.
CRT 1139

MULTI-CD CONTROL FM/MW/LW TUNER DECK

KEX-M700SDK

WG

KEX-M700B

EW

Note:

- See the separate manual CX-156 (CRT-468) for the cassette mechanism description.

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1. SPECIFICATIONS

General

Power source	14.4 V DC (10.8 — 15.6 V allowable)
Grounding system	Negative type
Tone controls (bass)	± 10 dB (100 Hz)
(treble)	± 10 dB (10 kHz)
Loudness contour	+10 dB (100 Hz), +7 dB (10 kHz) (volume: -30 dB)
Maximum output level	200 mV
Output impedance	1 k Ω
Dimensions (chassis)	180(W) \times 50(H) \times 150(D) mm
(front face)	188(W) \times 58(H) \times 10(D) mm
Weight	1.4 kg

Tape player

Tape	Compact cassette tape (C-30 — C-90)
Tape speed	4.76 cm/sec. (+0.14 cm/sec., -0.05 cm/sec.)
Fast forward/rewind time	Approx. 100 sec. for C-60
Wow & flutter	0.09% (WRMS)
Frequency response	Metal: 30 — 20,000 Hz (± 3 dB) Normal: 30 — 17,000 Hz (± 3 dB)
Stereo separation	45 dB
Signal-to-noise ratio	Dolby C NR IN: 70 dB (IEC-A network) Dolby B NR IN: 63 dB (IEC-A network) Dolby NR OUT: 55 dB (IEC-A network)

FM tuner

Frequency range	87.5 — 108 MHz
Usable sensitivity	12 dBf (1.1 μ V/75 Ω , mono)
50 dB quieting sensitivity	17 dBf (1.9 μ V/75 Ω , mono)
Signal-to-noise ratio	70 dB (IEC-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	50 — 15,000 Hz (± 3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)

MW tuner

Frequency range	531 — 1,602 kHz
Usable sensitivity	18 μ V (25 dB) (S/N: 20 dB)
Selectivity	50 dB (± 9 kHz)

LW tuner

Frequency range	153 — 281 kHz
Usable sensitivity	30 μ V (30 dB) (S/N: 20 dB)
Selectivity	50 dB (± 9 kHz)

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

2. DISASSEMBLY

• Case

1. Disconnect the six stoppers indicated by arrow, and remove the case.

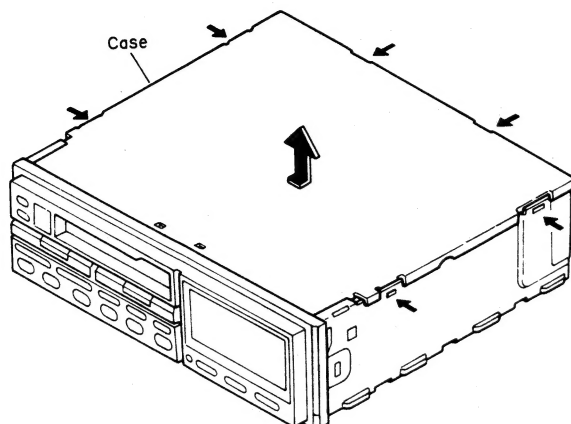


Fig. 1

• Grille Assy

1. Disengage the claws indicated by arrow.
2. Disconnect the two connectors, and remove the grille assy.

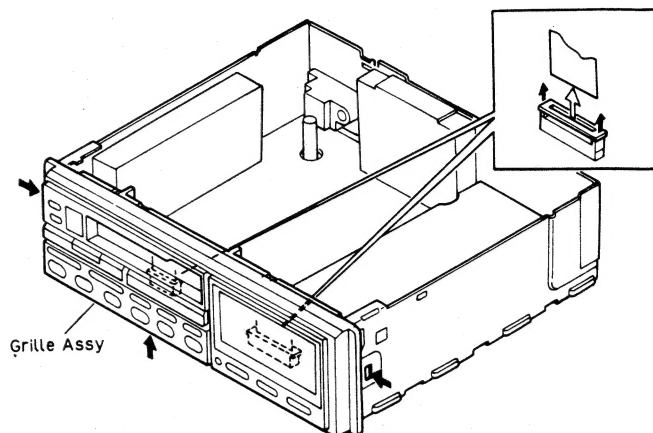


Fig. 3

• Cassette Mechanism Assy (Fig. 2)

1. Unfasten the four screws indicated by arrow.
2. Since the PCB unit is connected to the control unit by connector, lift the unit upwards.

• Audio Unit

1. Straighten the two claws.
2. Lift the audio unit (connected to the control unit by connector) upwards.

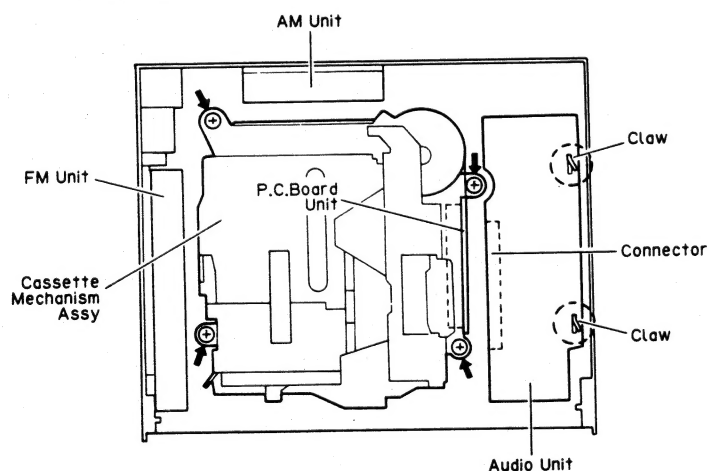


Fig. 2

• Chassis Unit

1. Straighten the two claws.
2. Unfasten the eight screws and remove the chassis unit.

• AM and FM Units

1. Straighten the claws of each unit under the control unit, and lift the units upwards.

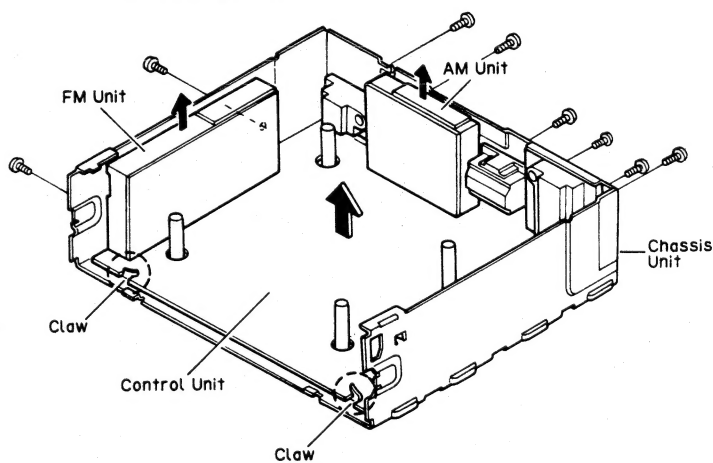


Fig. 4

3. CIRCUIT DESCRIPTION

3.1 DATA COMMUNICATIONS

• Basic System Configuration

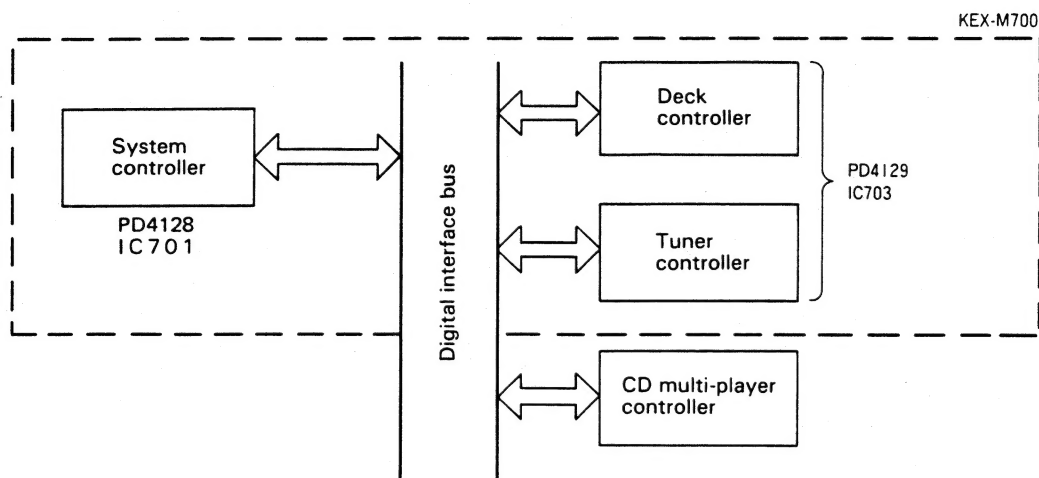


Fig. 5

• Data Bus Line

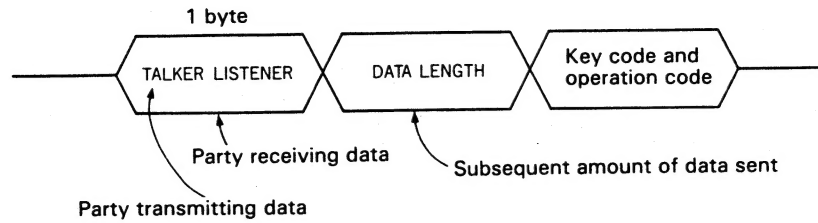
The data bus lines include the following five lines - BSCK, BDATA, BRXEN, $\overline{\text{BSRQ}}$, and BRST.

BSCK	<p>Synchronizing shift clock line</p> <p>Trailing edge: Data output from BSO</p> <p>Leading edge: Data input via BSI</p>
BDATA	<p>Data line</p> <p>Data synchronized with shift clock when placed on this line</p>
BRXEN	<p>Reception enable/disable signal line</p> <p>The decision to enable or disable transmission of data from the transmitting end is conveyed via this line.</p> <p>H (High impedance) --- Reception enabled</p> <p>L --- Reception disabled</p>

$\overline{\text{BSRQ}}$	<p>Service request line</p> <p>Request master for serial poll access.</p> <p>H (High impedance) --- No service request</p> <p>L --- Service request</p>
BRST	<p>System reset line</p> <p>Start of initialization including memory contents clearing when hardware reset executed. Communications initialization where memory contents are maintained when interface is cleared.</p>

• Data Format

a) Master → Slave



b) Slave → Master

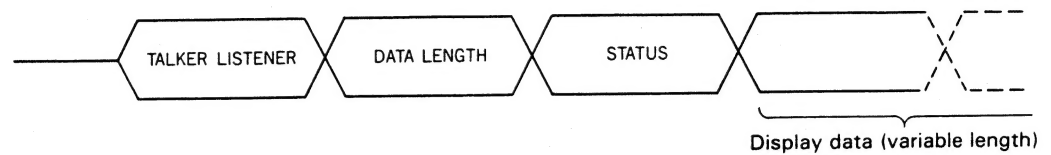


Fig. 6

• Communication Timing Chart

Example: Master → Slave

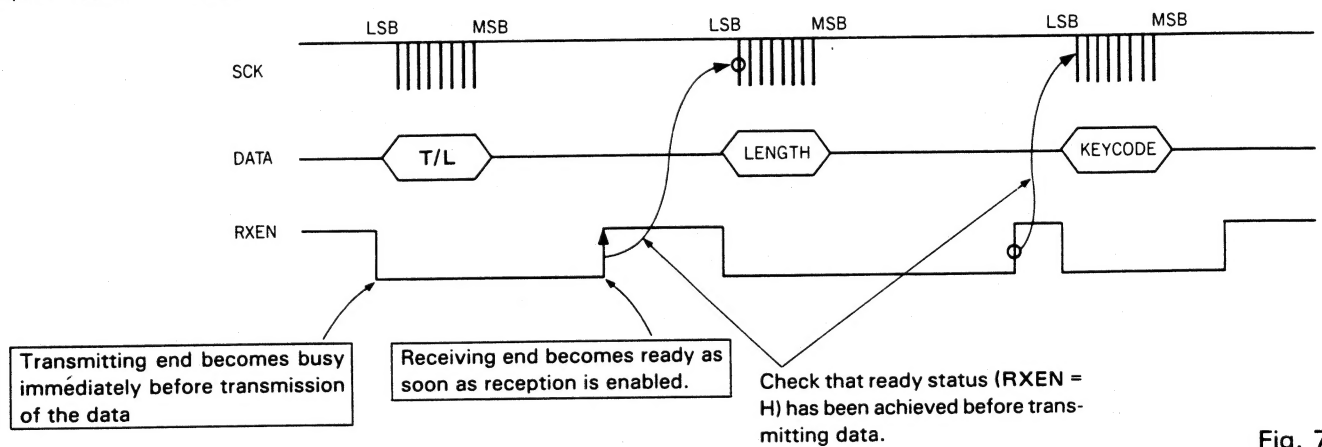
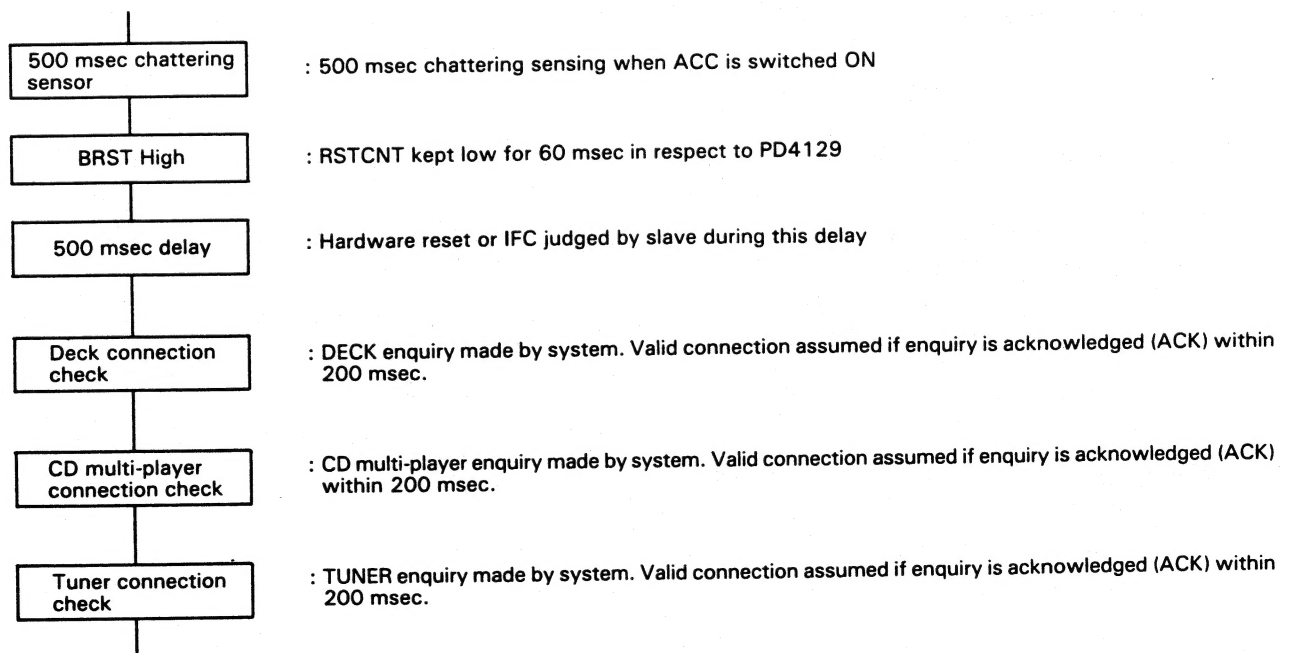


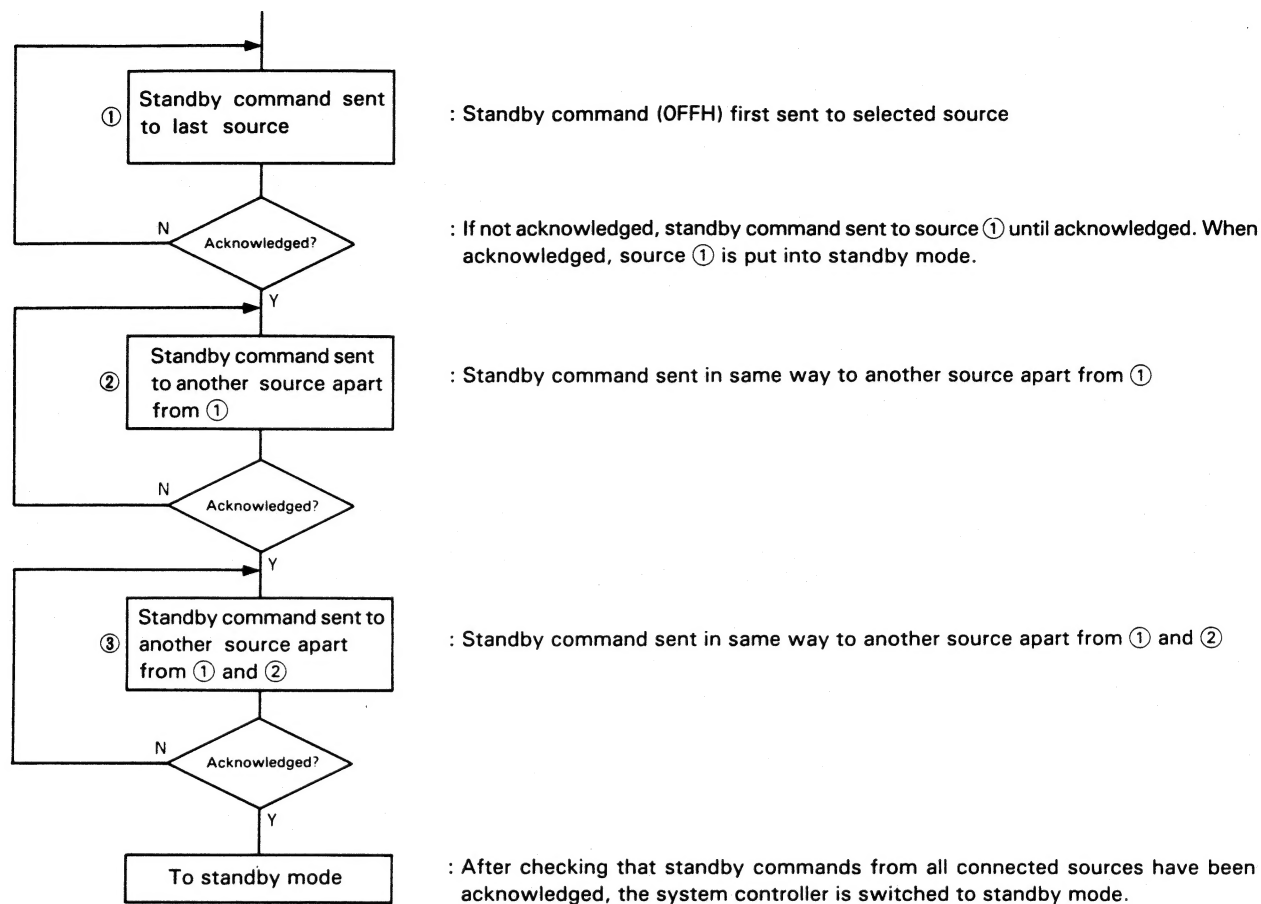
Fig. 7

• Operation (System controller operation)

a) Operation when ACC is ON



b) Operation when ACC is OFF



c) Serial polling when BSRQ is low

When transfer of display data from slave source to system controller is desired, BSRQ is set to low at the slave source. When the system controller detects this low SRQ state, polling is executed to investigate that source.

3.2 ELECTRONIC VOLUME (KHA215)

• Volume Setting Level and Display

Adjustment steps : 31 steps

Degree of change : 0 thru -40dB: 2dB/step
-40 thru -76dB: 4dB/step

-∞	-76	-60	-44	-34	-28	-22	-16	-10	-4
(7AH)	-72	-56	-40	-32	-26	-20	-14	-8	-2
	-68	-52	-38	-30	-24	-18	-12	-6	0 (dB)
	-64	-48	-36						

• Balance Setting and Display

L									R
	-26	-18	-10	-2	0	-2	-10	-18	-26
	-28	-20	-12	-4		-4	-12	-20	-28
	-30	-22	-14	-6		-6	-14	-22	-30
-∞ ←	-32	-24	-16	-8		-8	-16	-24	-32 → -∞ (dB)

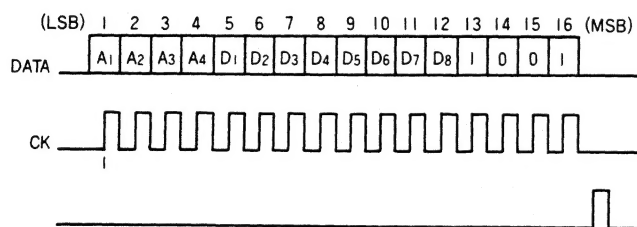
• Fader Setting Level and Display

R									F
-45	-18	-10	-2	0	-2	-10	-18	-45	
-60	-20	-12	-4		-4	-12	-20	-60	
-∞	-25	-14	-6		-6	-14	-25	-∞	(dB)
-35	-16	-8			-8	-16	-35		

• Bass and Treble Setting Levels and Display

-12	-10	-6	-2	0	2	6	10	12	(dB)
	-8	-4			4	8			

• Data Format



a) A1 thru A4

A1	A2	A3	A4	
L	L	L	H	Volume (L)
H	L	L	H	Volume (R)
L	H	L	H	Bass
H	H	L	H	Treble
L	L	H	H	Fader

b) D1 thru D8

Step setting for each volume. Note that D1 thru D4 is used for bass and treble, and that D1 thru D4 plus D8 is used when fading.

1) L/R volume

When L/R volume is selected by A1 thru A4, D1 thru D7 is used to set the volume attenuation data.

2) Loudness

D8 serves as loudness ON/OFF data. This data is 1 when loudness is ON, and 0 when OFF. Loudness is switched ON and OFF simultaneously in left and right channels.

3) Bass and treble

When bass/treble is selected by A1 thru A4, D1 thru D4 serves as bass/treble control data.

Although bass and treble are set independently, left and right channels are always set simultaneously.

D1	D2	D3	D4	Setting	D1	D2	D3	D4	Setting
L	H	H	L	+12(dB)	H	H	H	H	-2(dB)
H	L	H	L	+10	L	H	H	H	-4
L	L	H	L	+8	H	L	H	H	-6
H	H	L	L	+6	L	L	H	H	-8
L	H	L	L	+4	H	H	L	H	-10
H	L	L	L	+2	L	H	L	H	-12
L	L	L	L	0					

4) Fader

When the fader is selected by A1 thru A4, D1 thru D4 serves as the fader control data.

The front is attenuated when D8 is high, and the rear is attenuated when D8 is low.

D1	D2	D3	D4	Setting	D1	D2	D3	D4	Setting
L	L	L	L	0(dB)	L	L	L	H	-16(dB)
H	L	L	L	-2	H	L	L	H	-18
L	H	L	L	-4	L	H	L	H	-20
H	H	L	L	-6	H	H	L	H	-25
L	L	H	L	-8	L	L	H	H	-35
H	L	H	L	-10	H	L	H	H	-45
L	H	H	L	-12	L	H	H	H	-60
H	H	H	L	-14	H	H	H	H	-∞

c) Code Bits

Data bits 13 thru 16 serve as the KHA215 code bits. Data cannot be received with any other code.

4. ADJUSTMENT

4.1 TEST MODE

Test mode is mainly used in adjustment of CD multi-players (such as CDX-M100).

- Switching to test mode
While pressing the VOL +, - keys together, switch the back-up ON or release the clear button.
- Canceling test mode
Press the CD multi-player clear button, and then the KEX-M700 clear button. Or, switch the CD multi-player and KEX-M700 back-up OFF.
- Key functions during test mode
The CD multi-player, deck, and tuner are selected by the **FUNC** key.

a) CD multi-player

Key	Function
BAND/REL	DD converter ON/OFF
FF	FWD kick
REW	REV kick
SCAN (A key)	Tracking close
MODE (B key)	Tracking open
PG (C key)	Focus close
MANUAL	Carriage/tracking switching

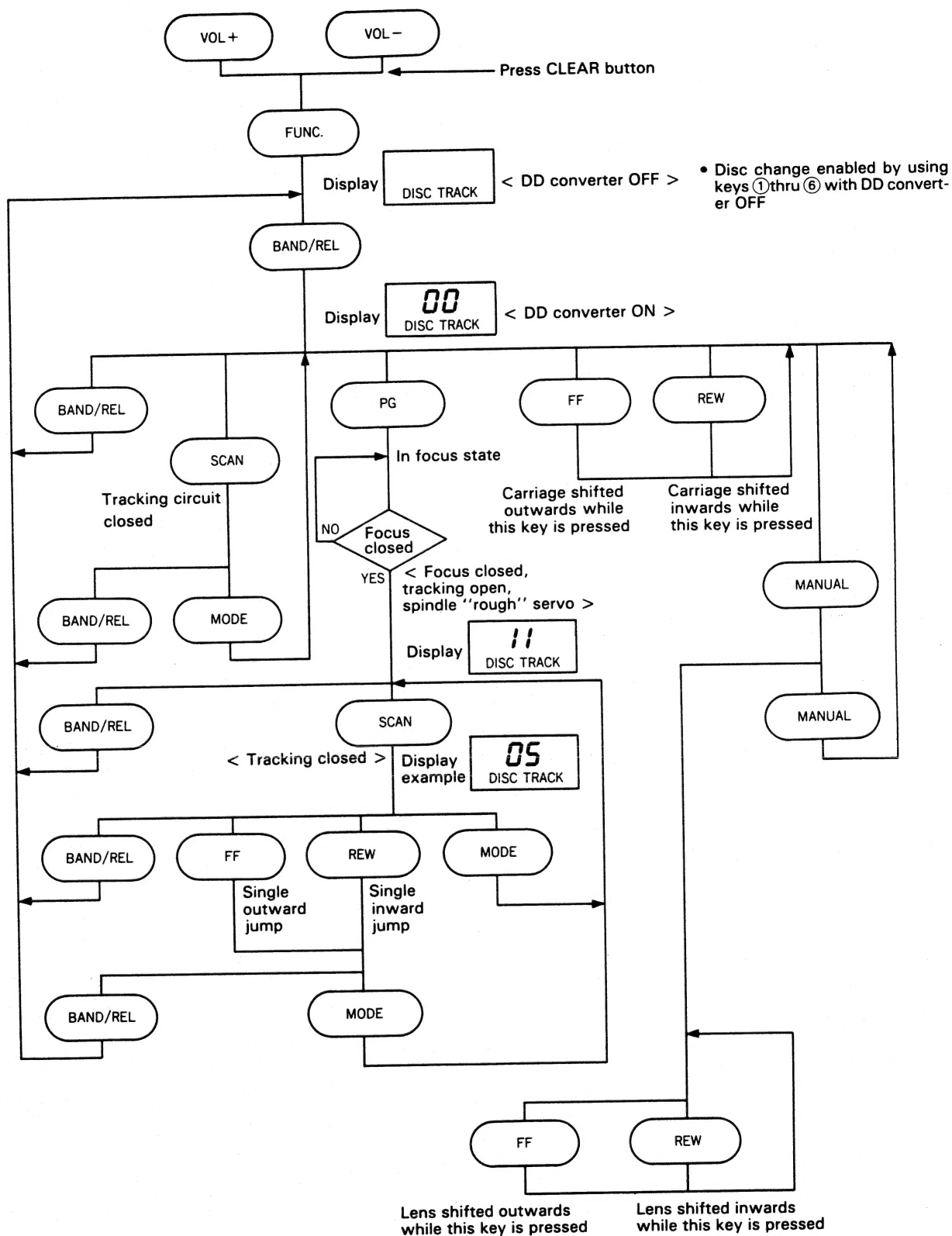
b) DECK

No corresponding function. Normal operation executed.

c) TUNER

During BSM operation, BSM is canceled when three stations are detected. Other keys are used for normal operations.

• Flow Chart



4.2 AUDIO/TUNER ADJUSTMENT

NOTICE:

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

Z: Output impedance of SSG.

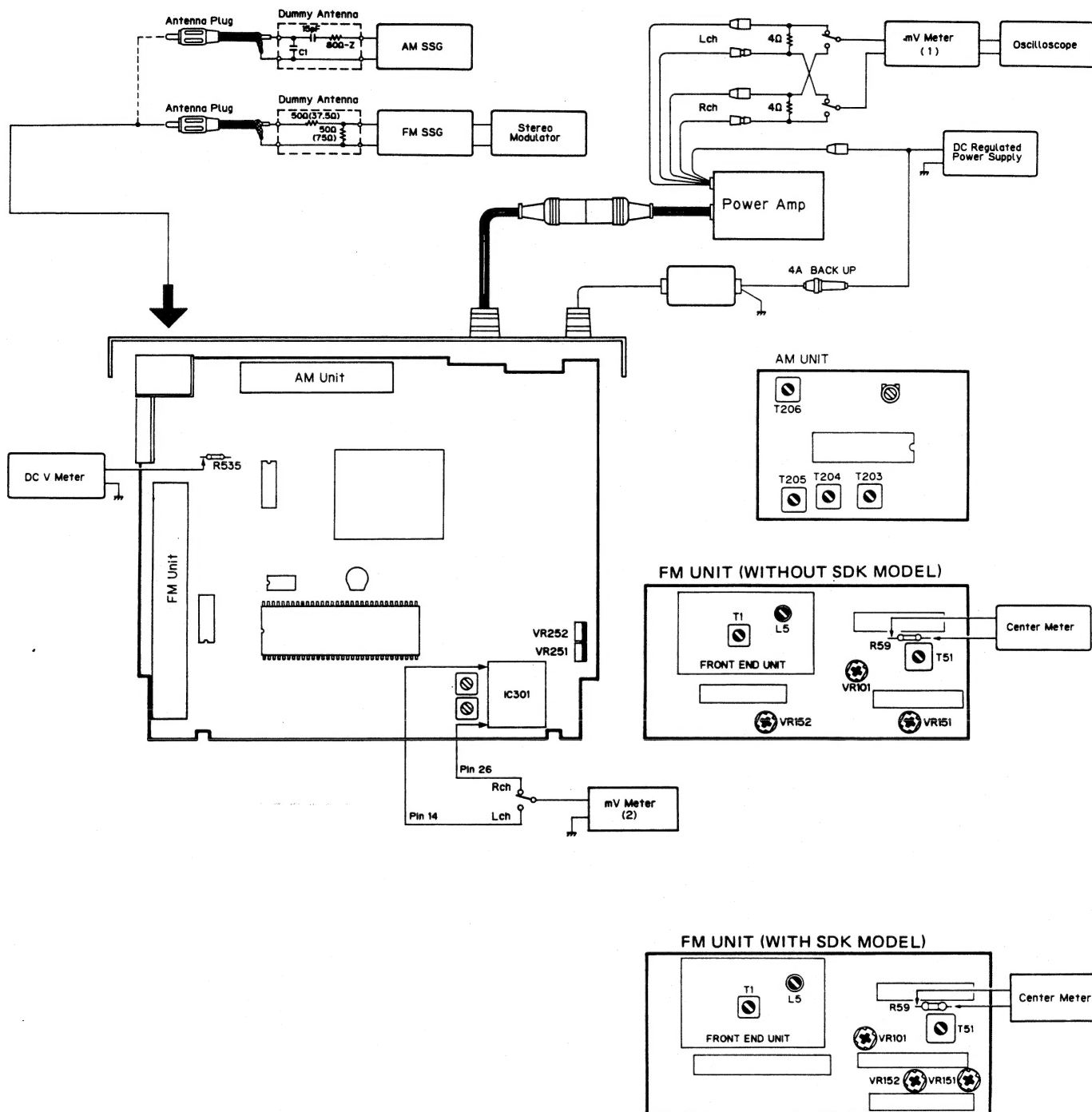


Fig. 8

DOLBY NR LEVEL ADJUSTMENT

No.	Cassette Tape	Adjusting Point	Adjustment Method (Switch Position)
1	NCT-150 (400Hz, 200nwb/m)	VR251 (Lch) , VR252 (Rch)	mV Meter (2) : $-8.2 \pm 1\text{dB}$ (DOLBY NR Switch: OFF)

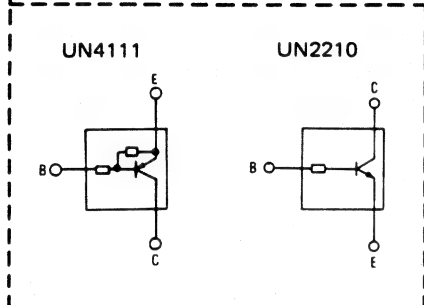
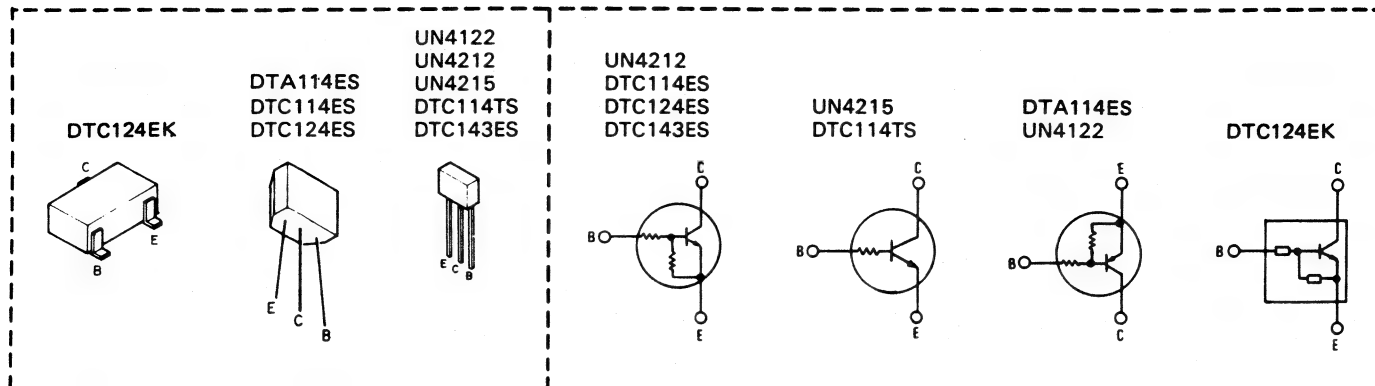
MW/LW ADJUSTMENT

	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dB)			
Tuning Volt	1	(MW Mode)		1,602	T203	DC V Meter: Less than 6V
	2	(LW Mode)		153	—	Verify that DC V meter more than 2V.
IF	1	999	20 - 25	999	T204, 205, 206	mV Meter (1): Maximum

FM ADJUSTMENT ※ Stereo MOD.: 1kHz, L+R = 90% , Pilot = 10%

	No.	FM SSG (400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dB)			
IF	1	98.1 (400Hz, 30%)	60	98.1	T51	Center Meter: 0 (MONO Position)
Front End	1			108.0	L5	DC V Meter: $6.5 \pm 0.2\text{V}$
	2			87.5	—	DC V Meter: More than 1.6V
	3	98.1 (400Hz, 30%)	5 - 10	98.1	T1	mV Meter (1): Maximum
MPX	1	98.1 Pilot Only ※	60	98.1	VR151	mV Meter (1): Minimum
	2	98.1 ※	60	98.1	VR101	mV Meter (1): Best separation (STEREO Position)
ARC	1	98.1 ※	35	98.1	VR152	mV Meter (1): Separation 5dB (STEREO Position)

• ICs and Transistors



2SA1048
2SA1150
2SC1740S
2SC2458



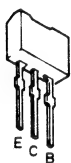
2SC2872S
2SD1468S
2SA933S



2SB945



2SD1859
2SB1243
2SD1919



2SK330



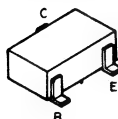
2SJ106



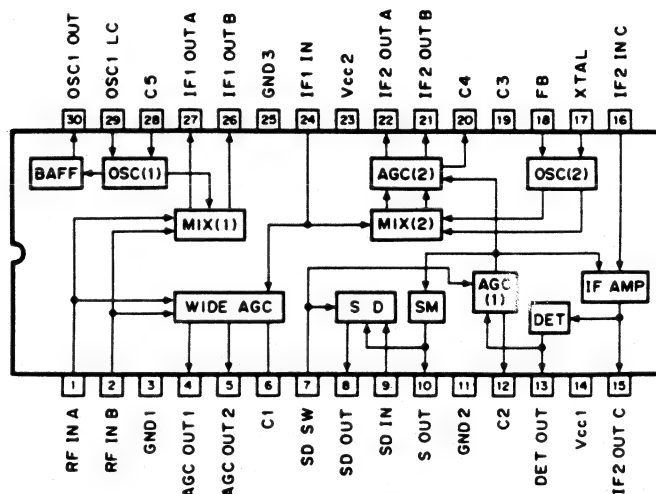
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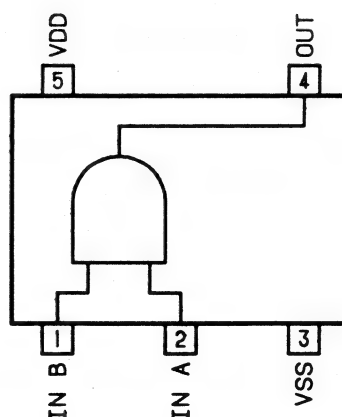
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2SA1179
2SC2712
2SD601
2SD1757K



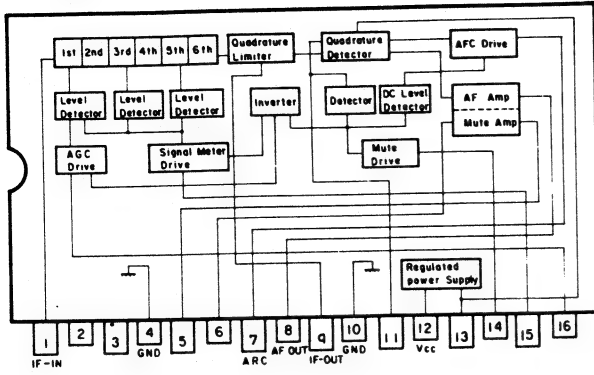
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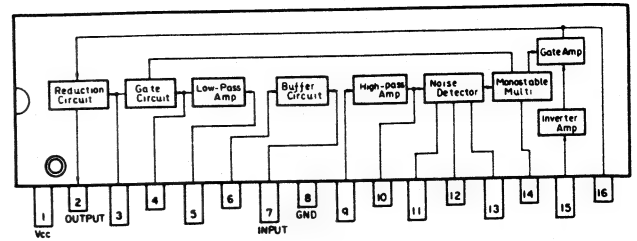
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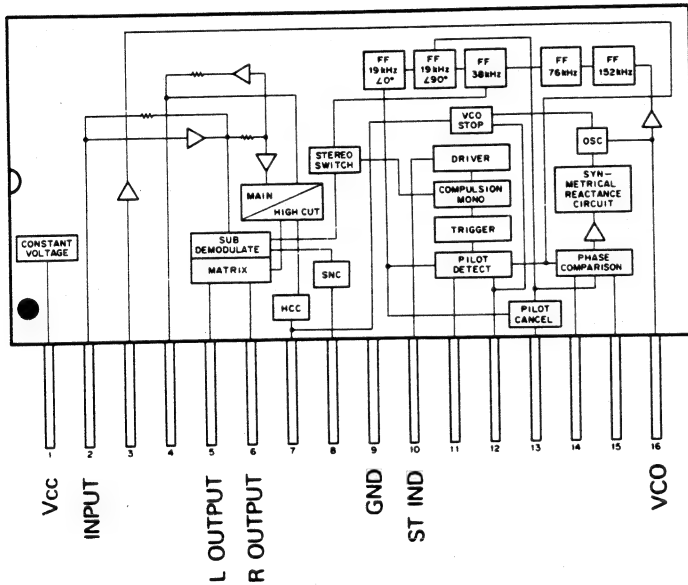
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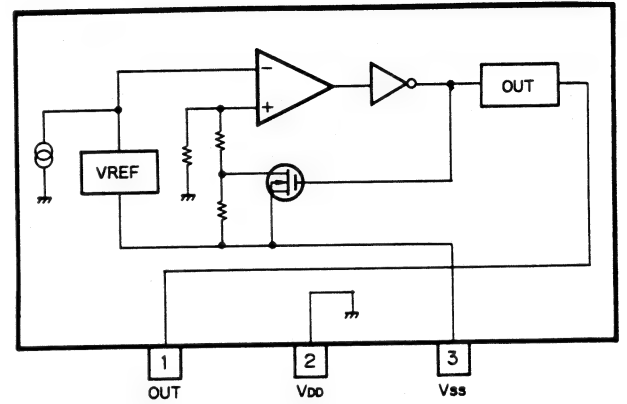
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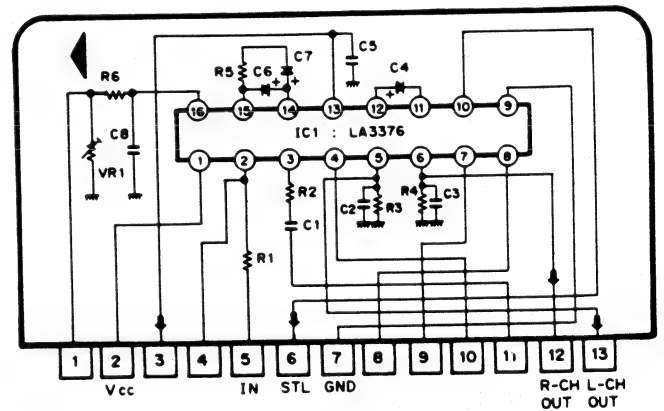
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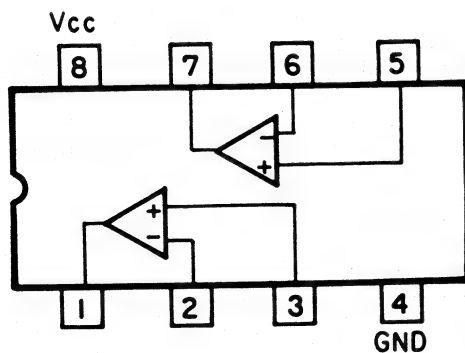
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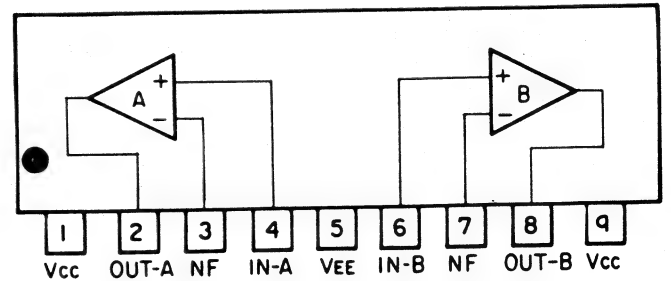
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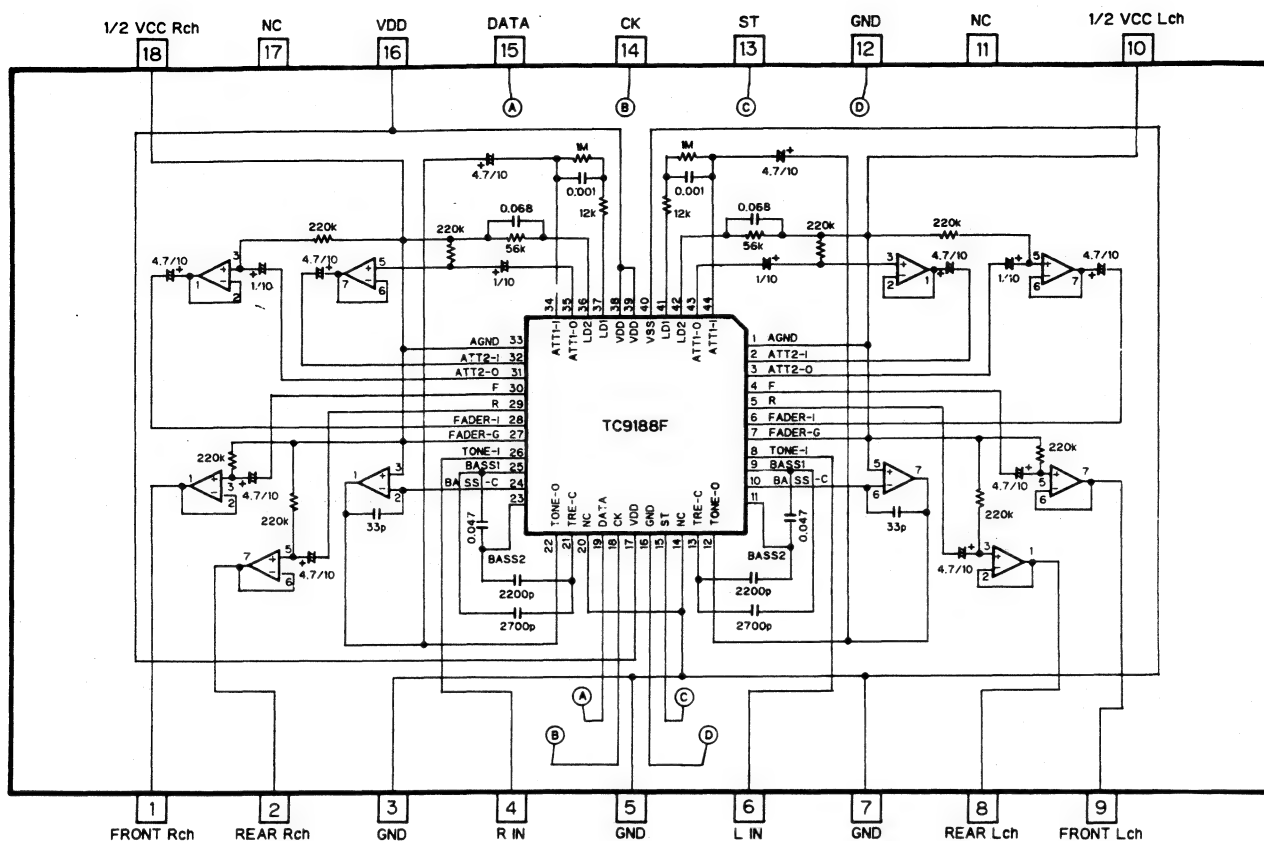
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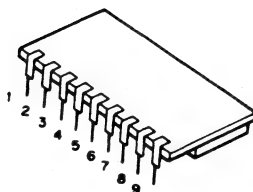
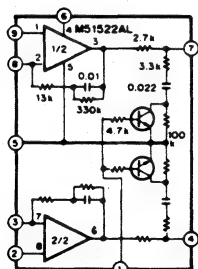
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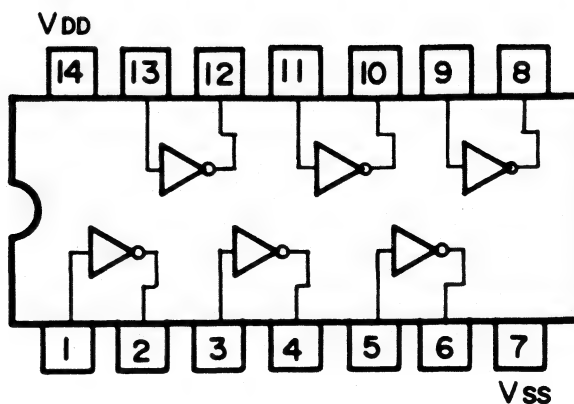
KHA215



CWW1033



TC4069UBP



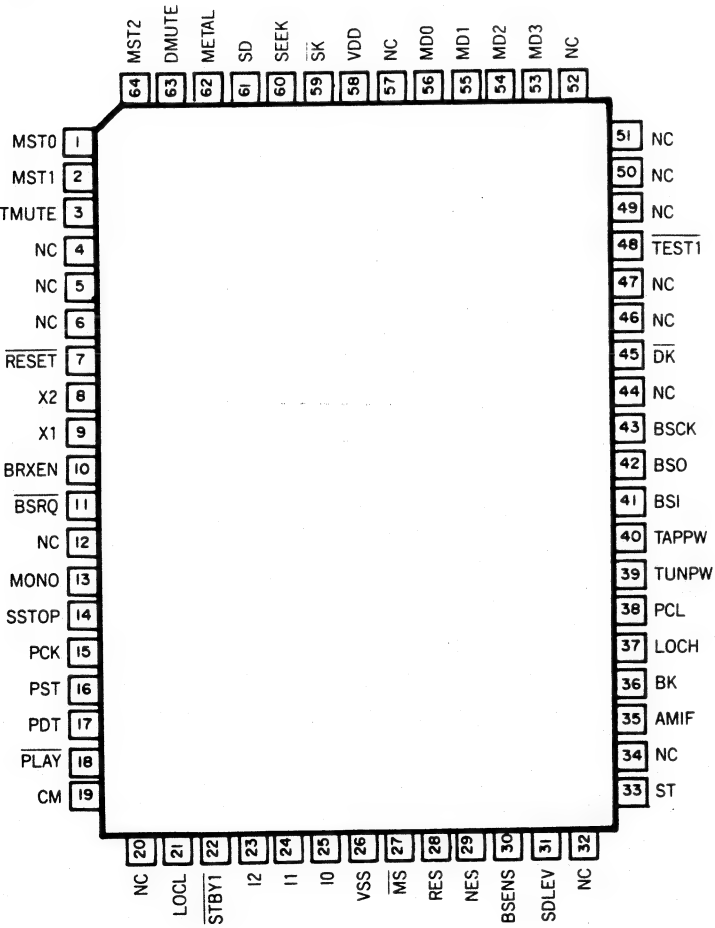
• Pin Functions (PD4128B)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	ASENS	Input		ACC power supply sensor - H when ACC OFF
2	AUX	Input		AUX input sensor - L when AUX operation activated
3	BSENS	Input		Back-up power supply sensor - H if back-up power level drops
4	REM IN	Input		Remote control pulse input - active L
5-8	NC			GND
9	DMUTE	Input		Deck muting input
10	TMUTE	Input		Tuner muting input
11	NC			
12	PCL			Clock adjustment (1.04MHz)
13	PEE	Output		Beep tone and SK alarm output pin - L when no beep tone
14	NC			
15	BSi	Input		Communications data input pin
16	BSO	Output		Communications data output pin - high impedance when not talker
17	BSCK	Input/Output		Communications clock input/output pin - always input except during data transmission
18	NC			GND
19-22	KD0-KD3	Input		Key return input pin - active L
23	NC			
24-30	KST0-KST6	Output	N	Key strobe - active L. High impedance when not selected.
31	NC			
32	VDD			+ 5V power supply
33	DISB	Output	C	AUX operation disable
34	VST	Output	C	Strobe for electronic VOL
35	VDT	Output	C	Data for electronic VOL
36	VCK	Output	C	Clock for electronic VOL
37	MUTE	Output	C	Muting signal output pin - active H
38	DOLBY BC	Output	C	Dolby Noise Reduction B/C switching - B:L, C:H
39	DOLBY PW	Output	C	Dolby Noise Reduction ON/OFF switching - ON: H, OFF: L
40	NC			
41	LINH	Output	C	LCD display OFF output - display OFF when L
42	LCE	Output	C	LCD driver select output - select when H
43	LCK	Output	C	LCD driver clock
44	LDT	Output	C	LCD driver data
45	RESET	Input		Reset input
46	X2			4.19MHz
47	X1			4.19MHz
48	BRST	Output	C	Bus reset
49	RSTCNT	Output	C	Sub-microcomputer reset - active H
50	BSRQ	Input	C	Data communications serial poll request (request when L)
51	BRXEN	Input/Output	C	Data communications busy line (busy when L)
52	NC			
53	SYSPW	Output	C	Power amplifier ON output - active H
54	EPW	Output	C	EEPROM power supply ON/OFF - active L
55	SDKMUTE	Output	C	Active L when output sound is from tuner
56	TEST2	Input		Clock adjustment - PCL OUT when L
57	EDi	Input		Data input from EEPROM

Pin No.	Pin Name	I/O	Output Format	Function and Operation
58	TEST1	Input		
59	NC			
60	EDO	Output	C	Data output to EEPROM
61	ECK	Output	C	Synchronizing clock output for data input/output
62	ECE	Output	C	EEPROM chip select
63	NC			
64	VSS			Ground

Output format	Meaning
N	N channel open drain
C	C-MOS

•PD4129B



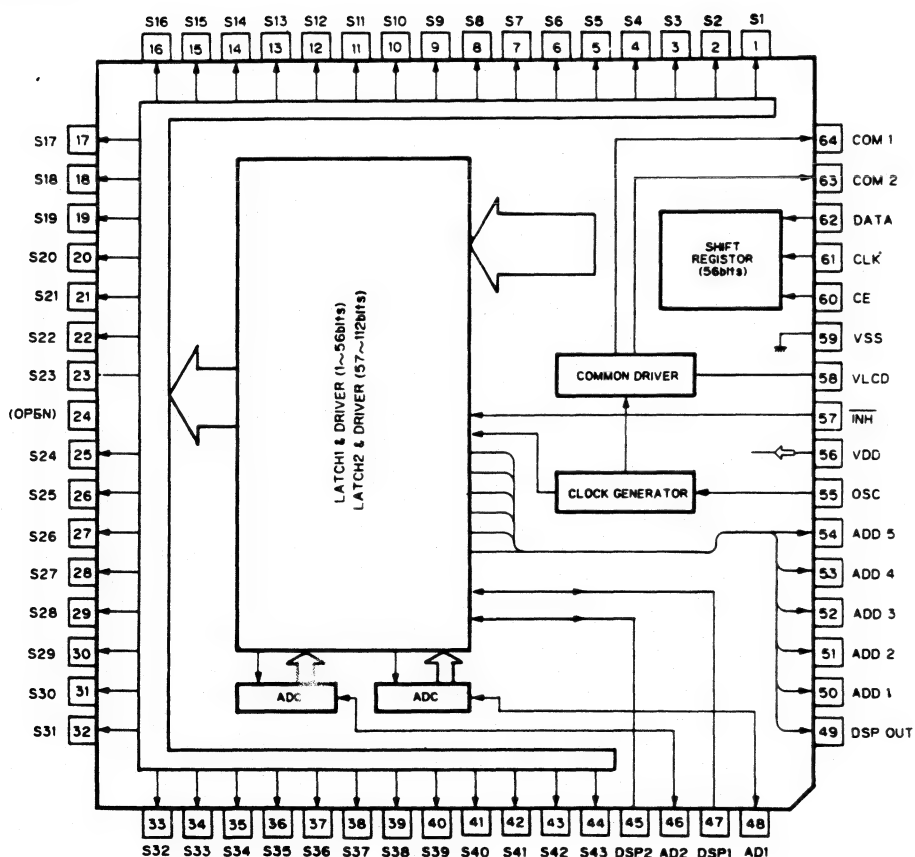
• Pin Functions (PD4129B)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	MST0	Output	C	Strobe output for mechanical switch matrix
2	MST1	Output	C	Strobe output for mechanical switch matrix
3	TMUTE	Output	C	Tuner muting output. Switched to H when tuner operation change is made.
4-6	NC	Output	C	Always L.
7	RESET	Input		Hardware reset. Reset executed when L.
8	X2			System clock generator crystal connector pins. $f = 4.194304\text{MHz}$
9	X1			
10	BRXEN	Input/Output	C	System control microcomputer communications control line
11	BSRQ	Input/Output	C	
12	NC			
13	MONO	Output	C	Tuner Compulsory monaural output. Monaural when H.
14	SSTOP	Output	C	Tuner VCO output STOP pin
15	PCK	Output	C	PLL IC clock line
16	PST	Output	C	PLL IC strobe line
17	PDT	Output	C	PLL IC data line
18	PLAY	Output	C	Deck MS sensitivity switching. L when PLAY.
19	CM	Output	C	Deck capstan motor control output. L when STOP.
20	NC			Always L
21	LOCL	Output	C	Tuner sensitivity switching control output
22	STBY1	Output	C	Control of deck control IC STBY1 pin
23-25	I2-I0	Output	C	Control of deck control IC
26	VSS			Ground
27	MS	Input		Deck MS input. Change made when tune detected, no change when no tune is detected.
28	RES	Input		Reel pulse detector input - reverse
29	NES	Input		Reel pulse detector input - forward
30	BSENS	Input		Back-up line detector input. Back-up ON when L.
31	SDLEV	Input		Tuner SD level detector input (analog input)
32	NC			GND
33	ST	Input		Stereo input - L for monaural, H for stereo and compulsory monaural
34	NC			GND
35	AMIF	Input		AM IF count input. IF checked by counting number of pulses in 7.8125 msec interval. Broadcasting station detected when 450kHz.
36	BK	Input		Input for periodical BK measurement
37	LOCH	Output	C	Tuner sensitivity switching control input
38	PCL	Output	C	1/4 system clock output (1.048576MHz) This output is generated when the TEST1 pin (no.48) is switched to L one second after ACC ON.
39	TUNPW	Output	C	Tuner power supply control
40	TAPPW	Output	C	Deck power supply control
41	BSI	Input		System control microcomputer communications - data input
42	BSO	Output	C	System control microcomputer communications - data output
43	BSCK	Input/Output	C	System control microcomputer communications - clock input /output
44	NC			GND
45	DK	Input		Tuner DK input - L when DK detected
46, 47	NC			
48	TEST1	Input		

Pin No.	Pin Name	I/O	Output Format	Function and Operation
49-52	NC			GND
53-56	MD3-MD0	Input		Data input for mechanical switch matrix
57	NC			
58	VDD			Power supply pin
59	SK	Input		Tuner SK signal input pin - L when SK detected
60	SEEK	Output	C	Tuner SEEK output - H when SEEK
61	SD	Input		Tuner FM SD input - H when tune from broadcast station is detected
62	METAL	Output	C	Deck EQ amplifier 70 μ sec switching - 70 μ sec when H
63	DMUTE	Output	C	Deck muting output - H when deck operation change is made
64	MST2	Output	C	Strobe output for mechanical switch matrix

Output format C: CMOS output

LC7582P



- **Quick Release Connector**

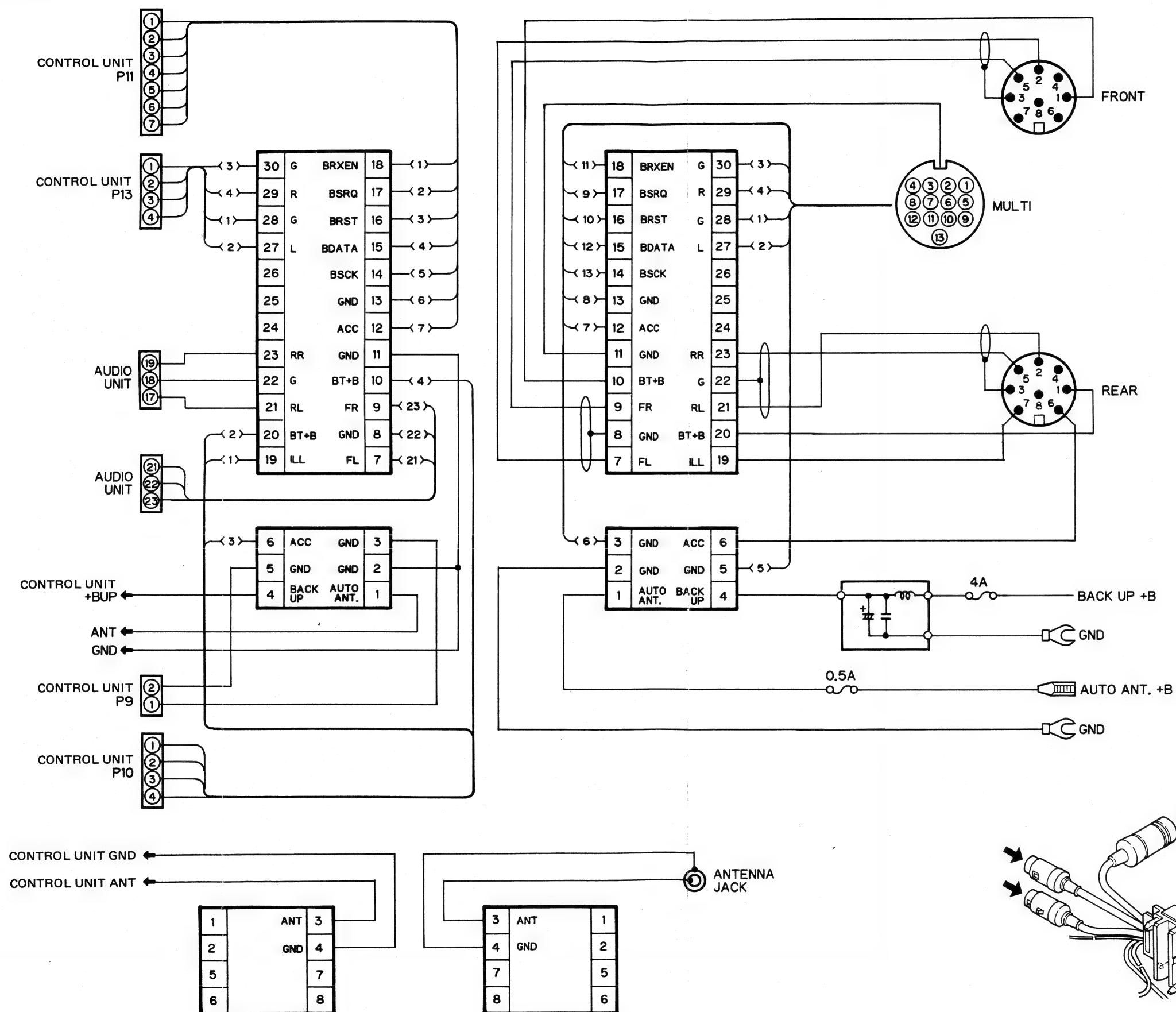
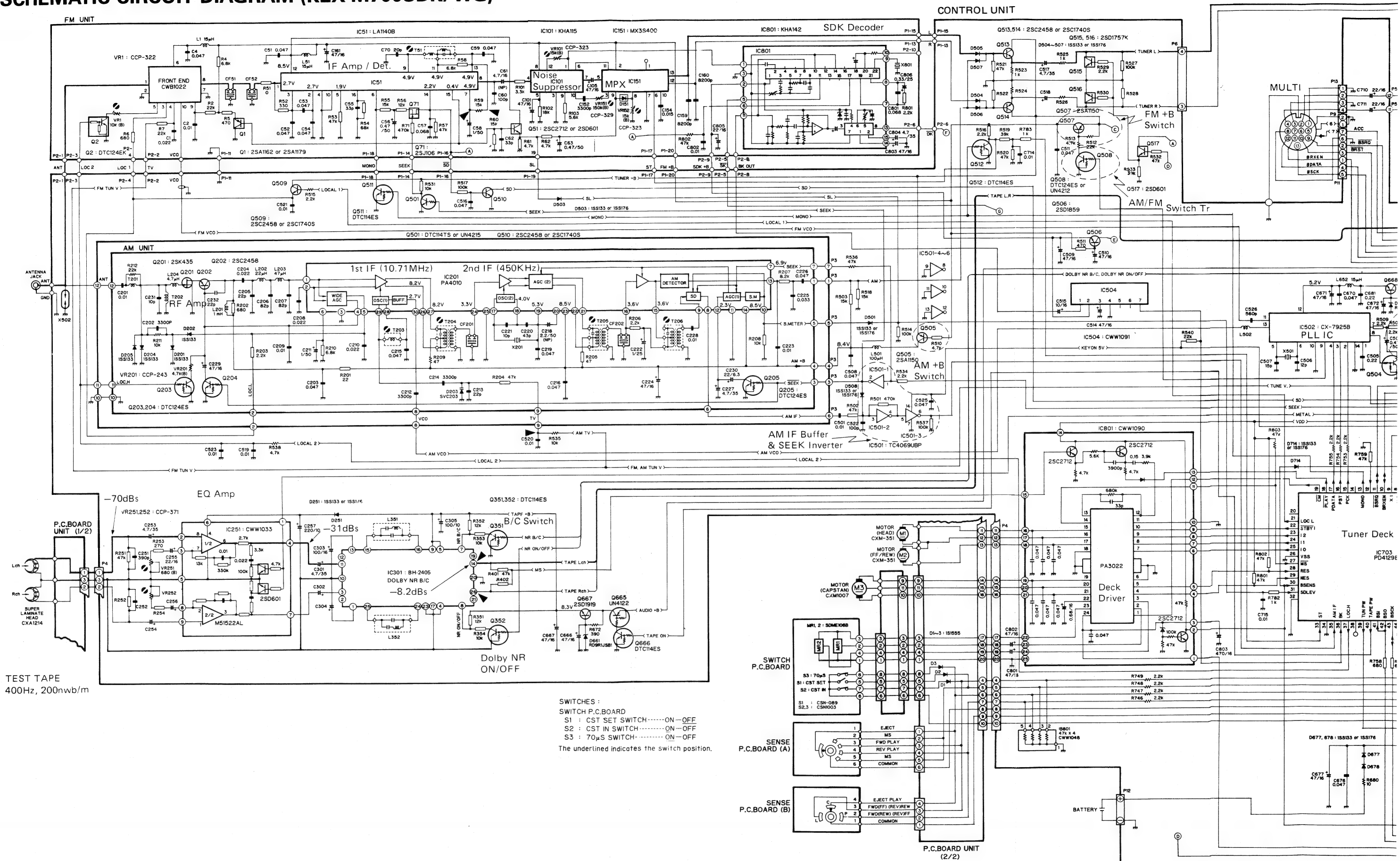


Fig. 12

5. SCHEMATIC CIRCUIT DIAGRAM (KEX-M700SDK/WG)



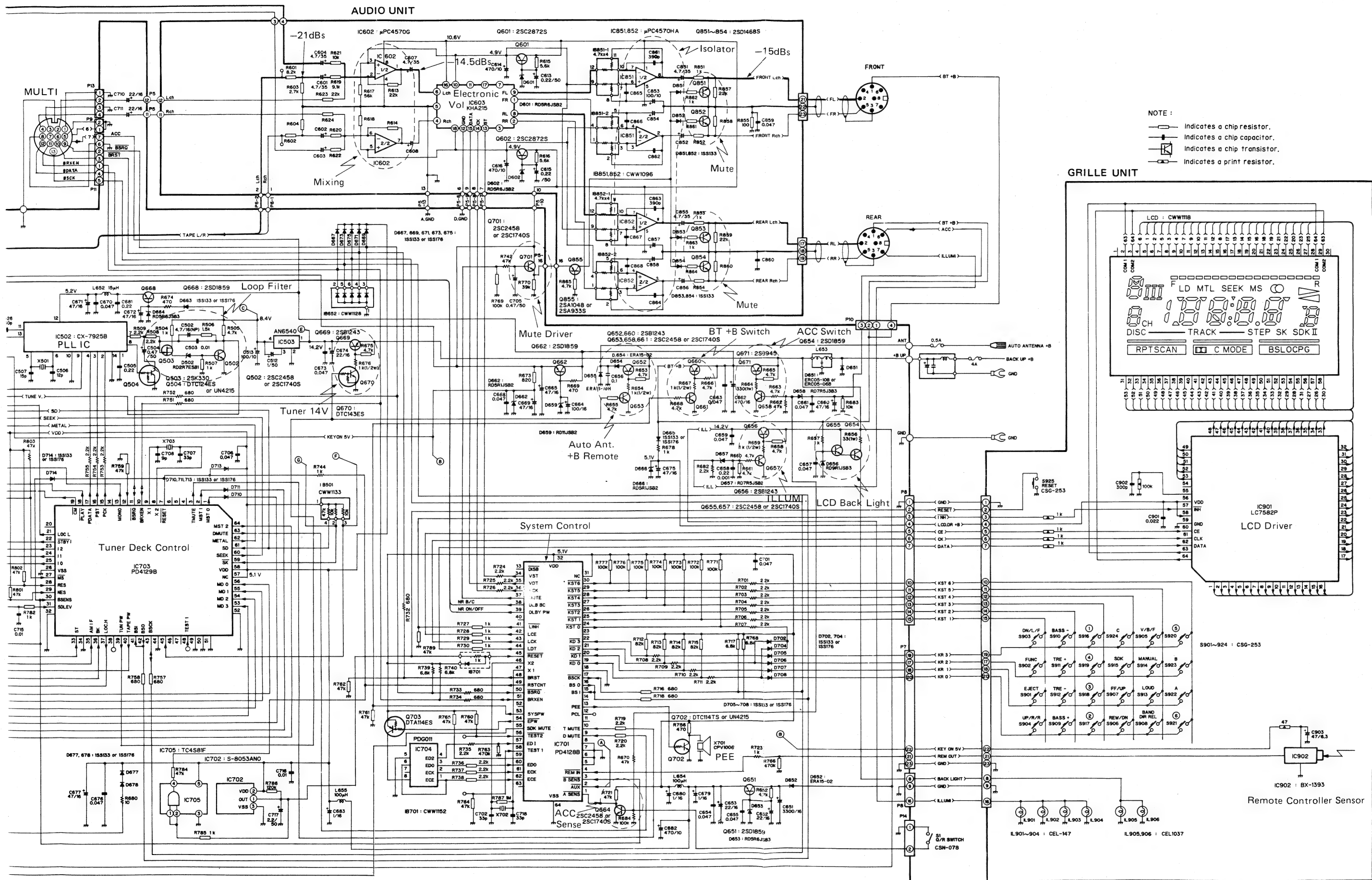


Fig. 13

6. CONNECTION DIAGRAM (KEX-M700SDK/WG)

A

B

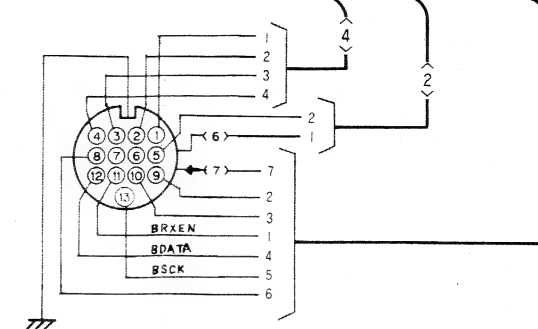
C

D

CONTROL UNIT

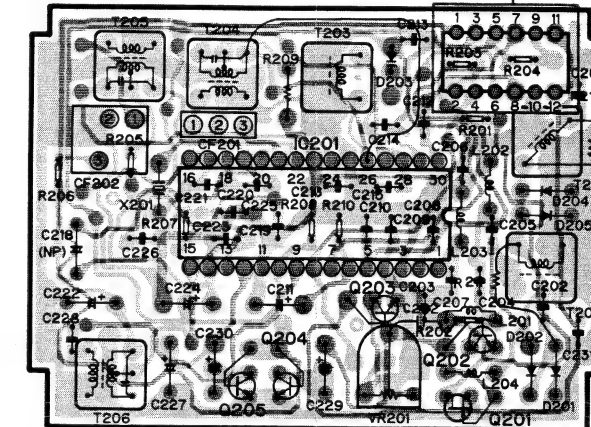
IC,Q	Q662 Q671 Q666 Q665 Q667	Q658 IC251	Q516 IC301 Q515	Q701 Q351 Q352	Q652 Q653	Q656 IC705 Q657 IC703 IC702 IC801	Q660 Q661 IC701	Q517 Q703 Q702	Q669 IC704 Q670 Q655 Q654 Q664	Q509 Q501 Q505 Q503	Q502 IC502 Q504 Q511 Q512 Q506	Q651 Q507	IC503 IC504
ADJ	VR252 VR251												

MULTI



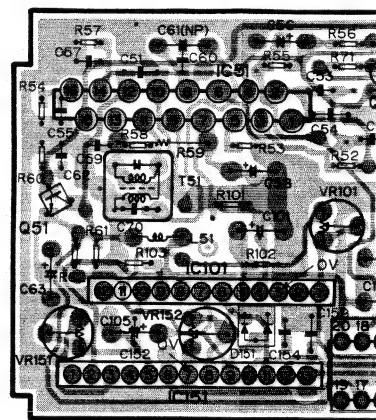
AM UNIT

IC,Q	Q205 Q204 T205 T206	Q203 T203	Q202 Q201
ADJ			



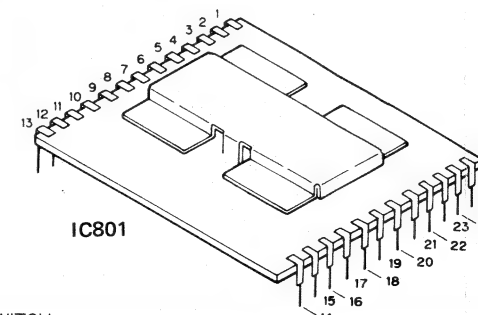
FM UNIT

IC,Q	Q51 VR151	IC51 IC101 IC151 T51 VR152	Q VR101
ADJ			



AM UNIT

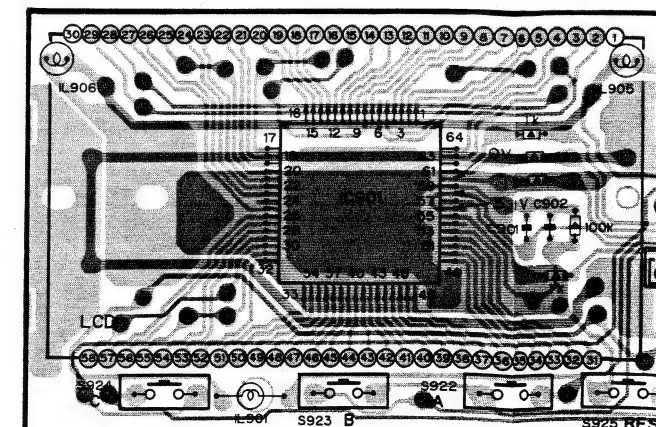
1	2	3	4	5	6	7	8
		0V				6.9V	
9	10	11	12	13	14	15	16
		2.3V			8.5V	3.6V	3.6V
17	18	19	20	21	22	23	24
	4.0V	5.3V				8.5V	3.3V
25	26	27	28	29	30		
	0V	8.2V	8.2V		2.7V		



S1
Q/R SWITCH

TO P.CBOARD UNIT

IC901



1

2

3

4

5

6

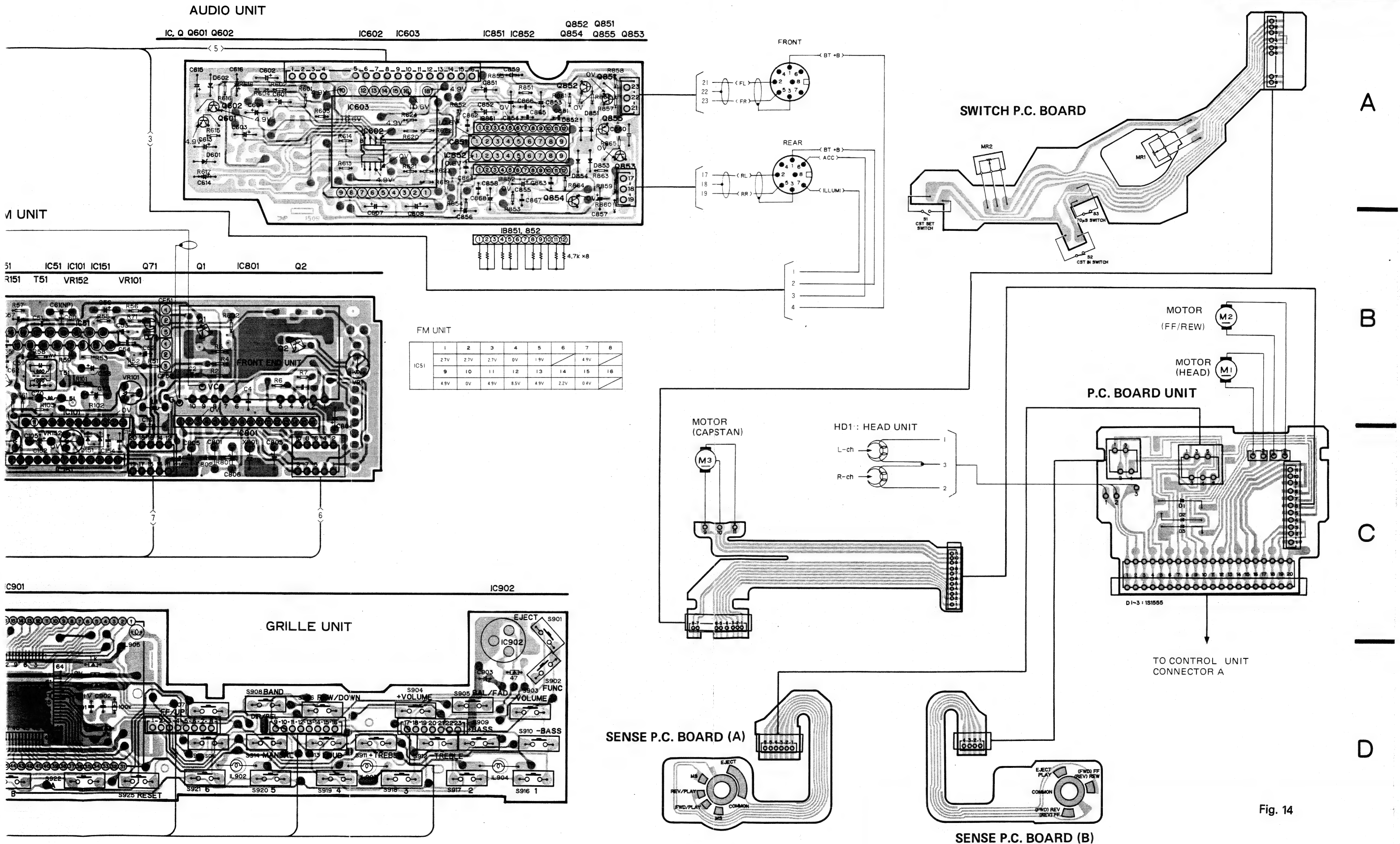


Fig. 14

SWITCHES :
SWITCH P.C.BOARD
S1 : CST SET SWITCH-----ON—OFF
S2 : CST IN SWITCH-----ON—OFF
S3 : 70 μ S SWITCH-----ON—OFF

The underlined indicates the switch position.

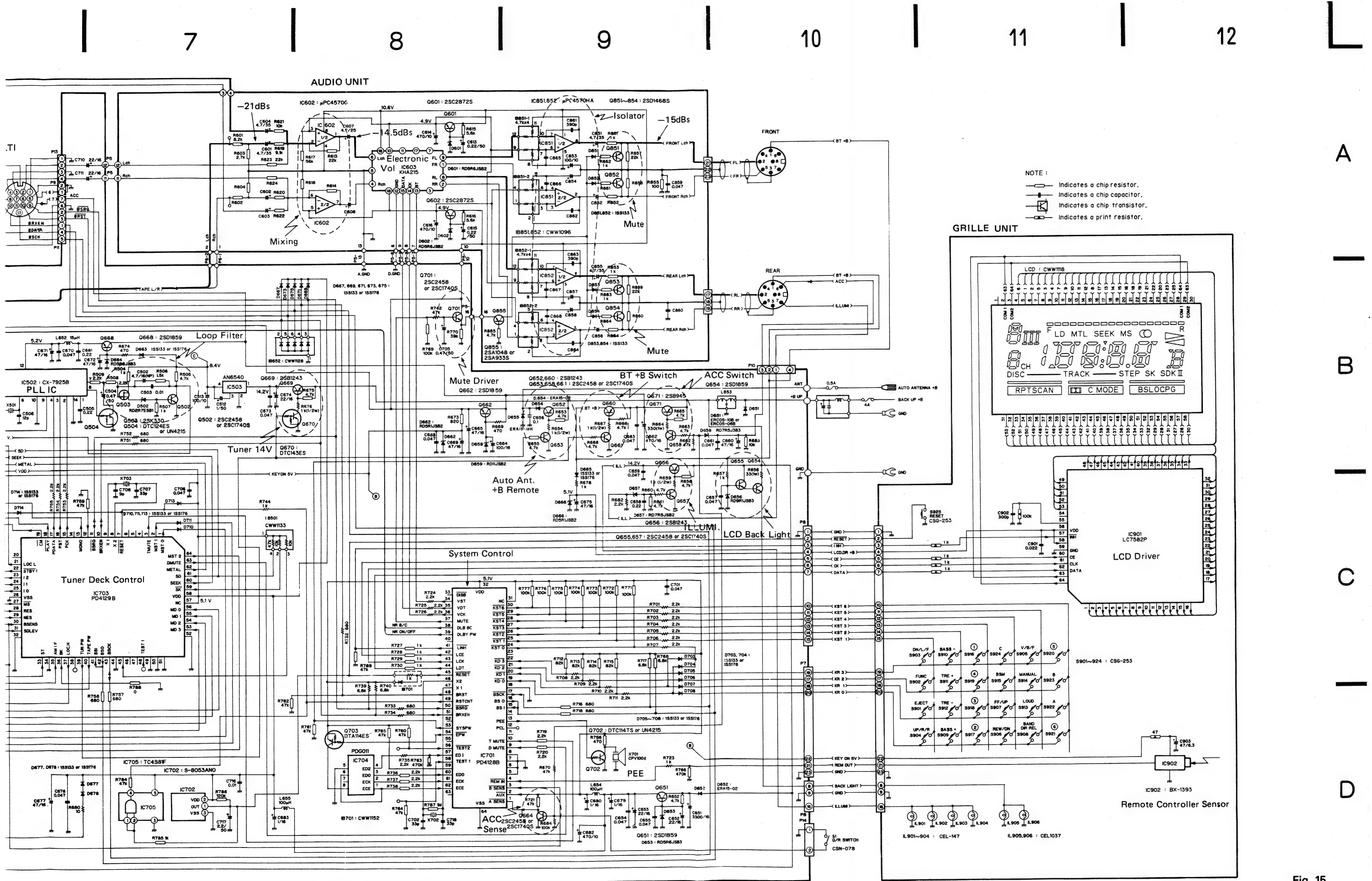
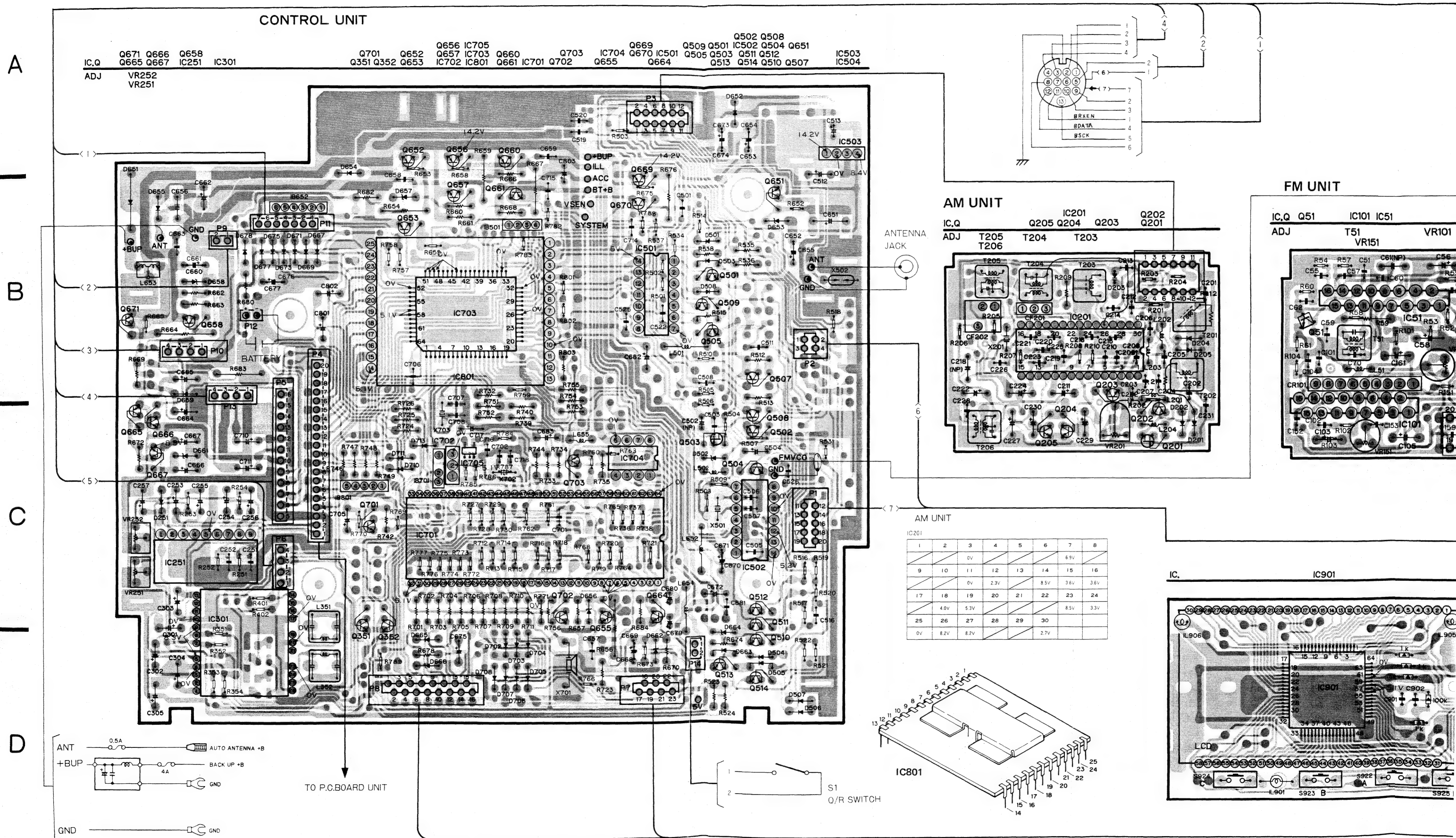


Fig. 15

8. CONNECTION DIAGRAM (KEX-M700B/EW)



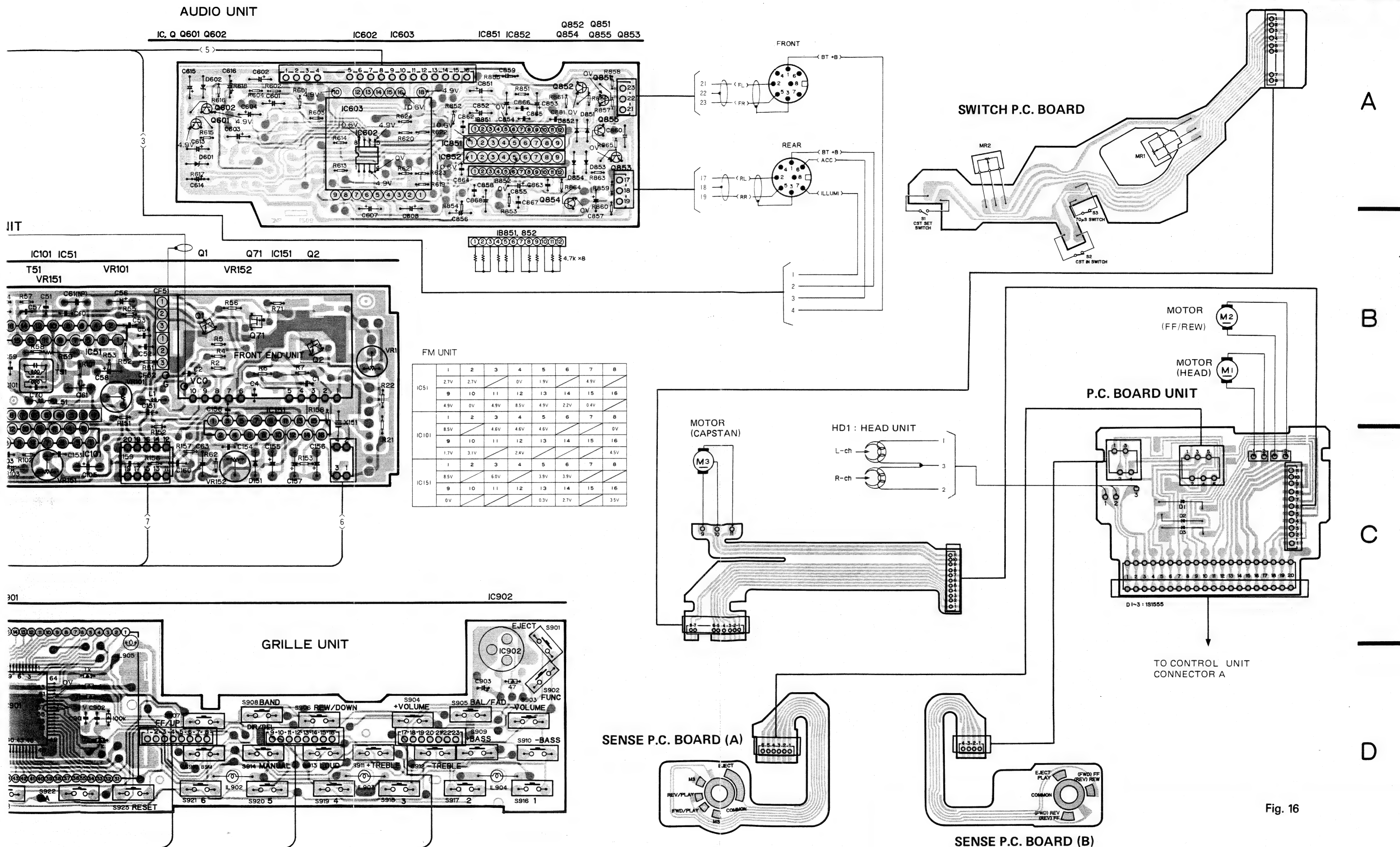


Fig. 16

9. CASSETTE MECHANISM EXPLODED VIEW

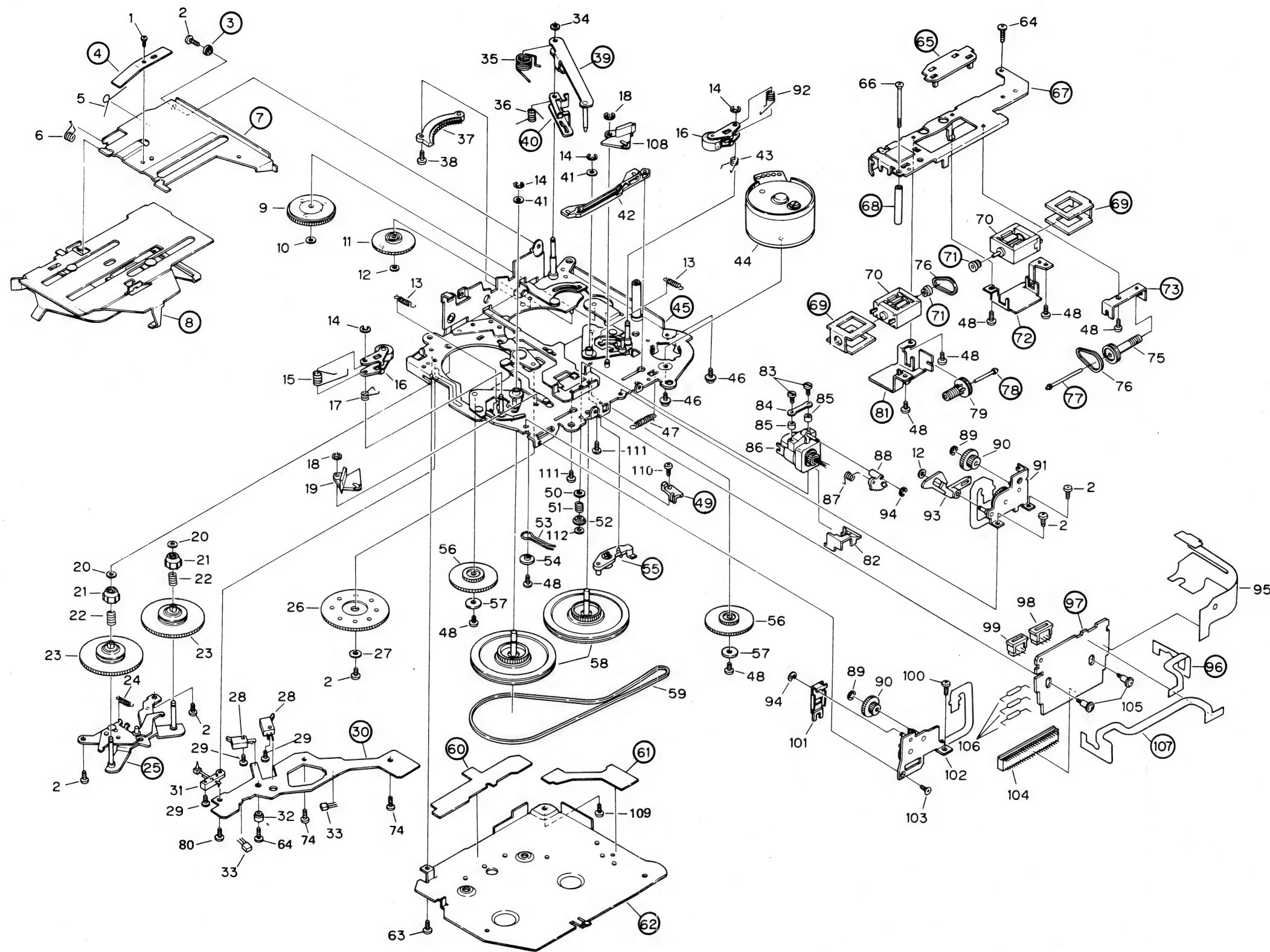


Fig. 17

• Parts List

NOTE:

- For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.
- ★★: GENERALLY MOVES FASTER THAN ★.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	HBA-147	Screw M1.4×1.4		35	CBH-887	Spring
	2	BMZ20P040FMC	Screw		36	CBH-886	Spring
	3		Bush		37	CNV1075	Gear
	4		Spring		38	CBA1004	Screw M2×6
	5	CBH-867	Spring		39		Arm Unit
	6	CBH-837	Spring		40		Arm
	7		Arm		41	HBH-179	Washer
	8		Holder Unit		42	CNV1257	Lever
	9	CXD-900	Gear Unit		43	CBH-833	Spring
	10	CBF1024	Washer	★★	44	CXM1007	Motor (Capstan)
	11	CNY-271	Gear		45		Chassis Unit
	12	CBF-126	Washer		46	PMS26P025FMC	Screw
	13	CBH-835	Spring		47	CBH-830	Spring
	14	CBG1001	E Type Washer		48	HBA-175	Screw M2×2.5
	15	CBH-832	Spring		49		Spacer
★★	16	CXA1445	Pinch Roller Unit		50	CBE-123	Washer
	17	CBH-834	Spring		51	CBH-902	Spring
	18	YE25FUC	Washer		52	HNC-953	Holder
	19	CNV1254	Arm		53	CBH-893	Spring
	20	CBF1022	Washer		54	CLA1110	Collar
	21	CNW-932	Collar		55		Clamper
	22	CBH-827	Spring		56	CNV1575	Gear
★★	23	CXD-877	Reel Unit		57	CLA1238	Collar
	24	CBH-868	Spring		58	CNV1572	Flywheel
	25		Bracket Unit	★★	59	CNT-111	Belt
	26	CNW-944	Gear		60		Insulator
	27	CLA1109	Collar		61		Insulator
★★	28	CSN1003	Switch (70 μS, CST IN)		62		Cover
	29	CBA1025	Screw M1.7×5.5		63	BMZ20P030FMC	Screw
	30		P.C. Board		64	CBA-172	Screw M1.7×5.5
★★	31	CSN-089	Switch (CST SET)		65		Holder
	32	CLA1170	Collar		66	CBA-165	Screw M2×25
	33	SDME106B	Magnetic Resistive Device		67		Guide
	34	CBF-046	Washer		68		Spacer
					69		Insulator

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
★★	70	CXM-351	Motor (FF/REW, Head Position)		94	YE15FUC	E Type Washer
	71		Pulley		95	CNP1227	P.C. Board
	72		Bracket		96		P.C. Board
	73		Bracket		97		P.C. Board
					98	CKS1075	Connector (6P)
	74	CBA1037	Screw M2×2.5		99	CKS1073	Connector (4P)
	75	CNV1255	Pulley		100	BMZ20P060FMC	Screw
★★	76	CNT1010	Belt		101	CNH-004	Arm
	77		Shaft		102	CXA1548	Holder Assy
	78		Shaft		103	HBA-209	Screw M2×2
	79	CNV1256	Pulley		104	CKS-678	Connector (20P)
	80	CBA1054	Screw M2×5		105	CBA1022	Screw M2×2×3
	81		Bracket	★	106	1S1555	Diode
	82		Cover		107		P.C. Board
	83	CBA1055	Screw M1.4×8		108	CNV1253	Arm
	84	CBE-114	Spring		109	CBA1060	Screw M2×7
	85	CNY-134	Azimuth Rubber		110	CBA1015	Screw M2×4
★★	86	CXA1214	Head Unit		111	CBA1041	Screw M2×2.5
	87	CBH-829	Spring		112	CBF1002	Washer
	88	CNW-939	Gear				
	89	YE12FUC	E Type Washer				
	90	CNV1262	Gear				
	91	CXA1546	Holder Assy				
	92	CBH-831	Spring				
	93	CNV1495	Arm				

10. CHASSIS EXPLODED VIEW

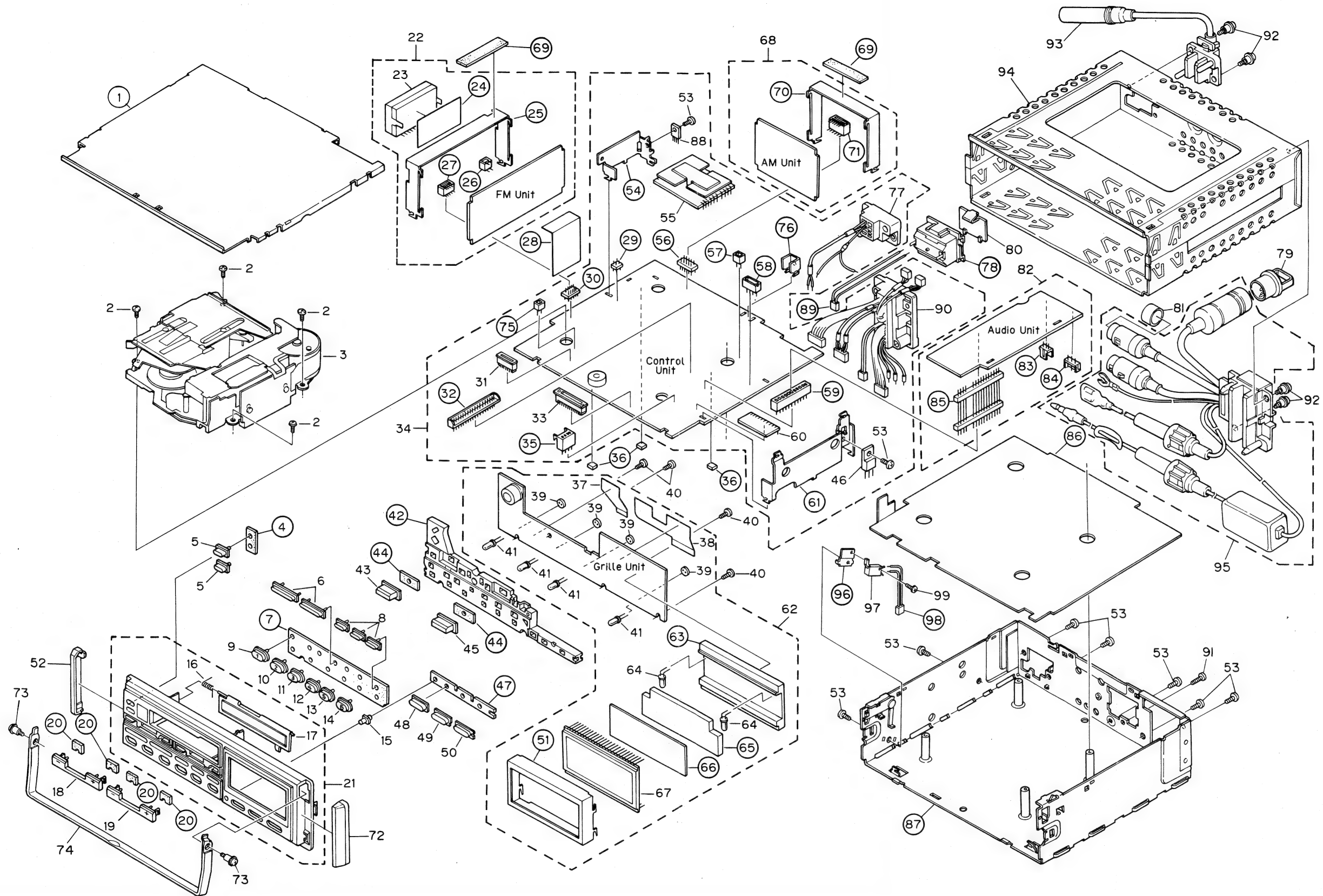
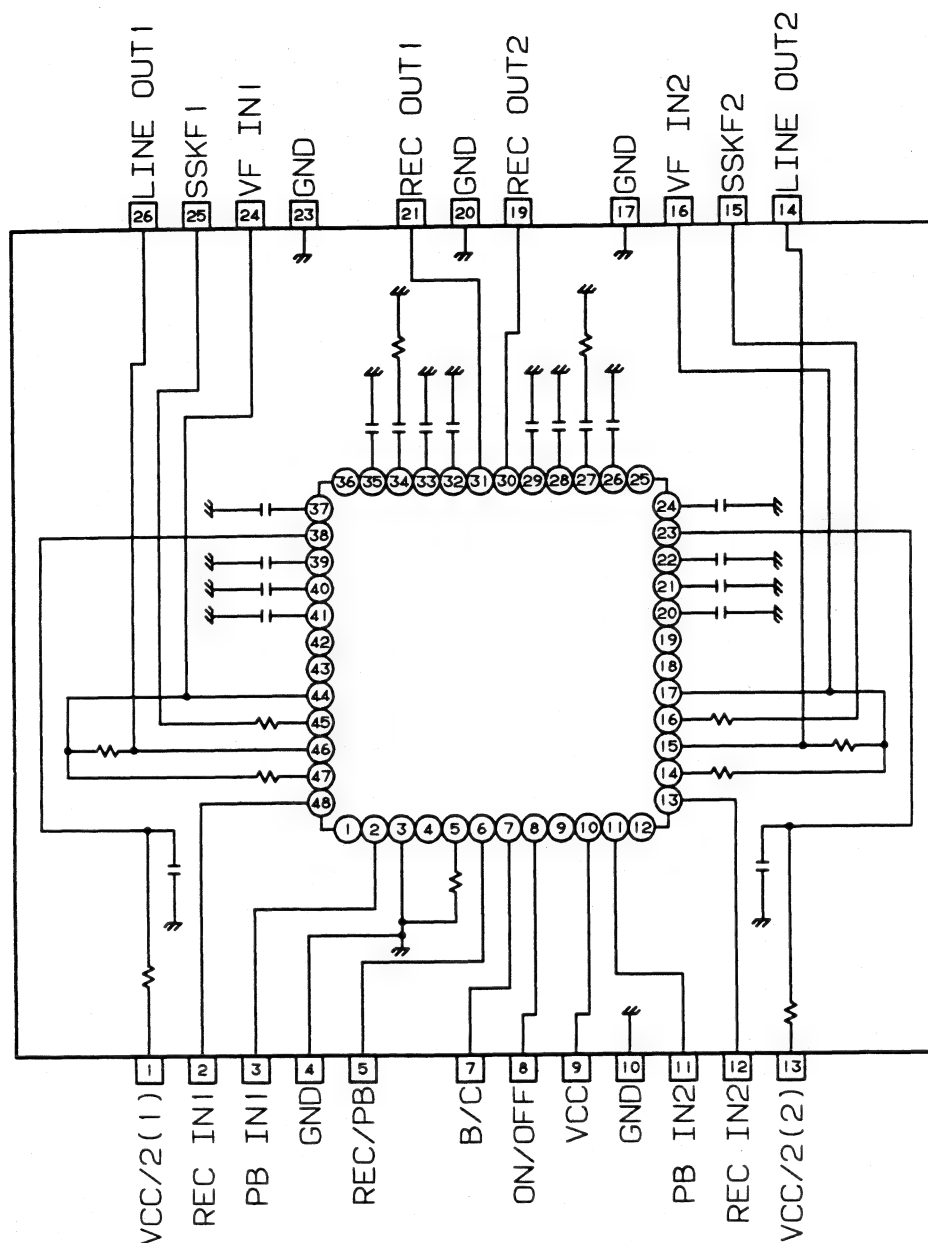
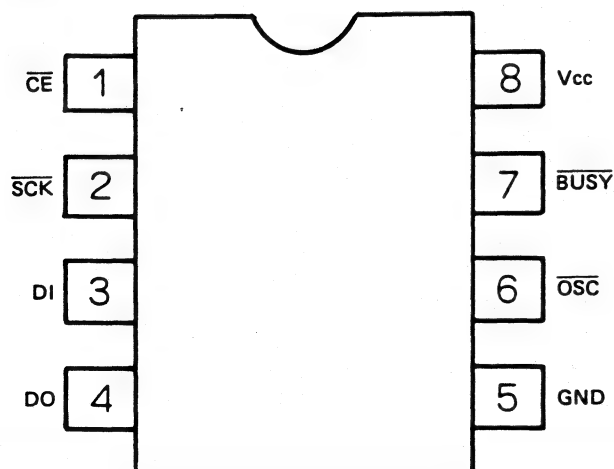


Fig. 18

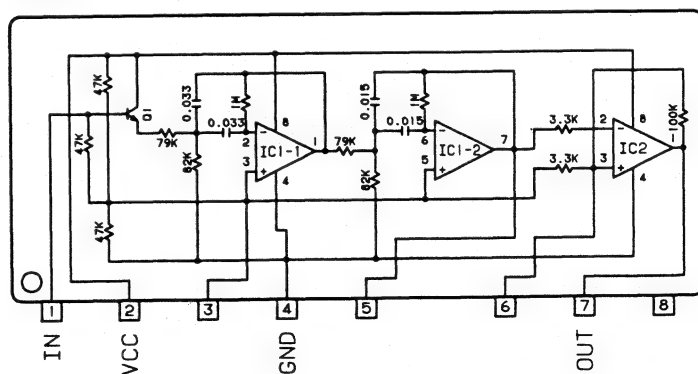
BH-2405



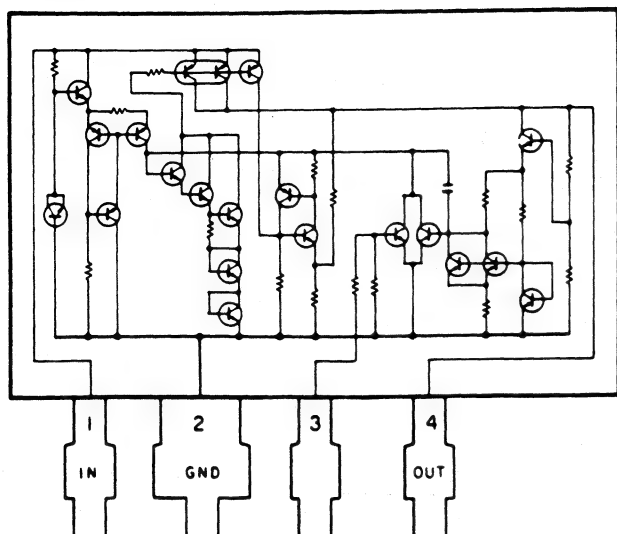
PDG011



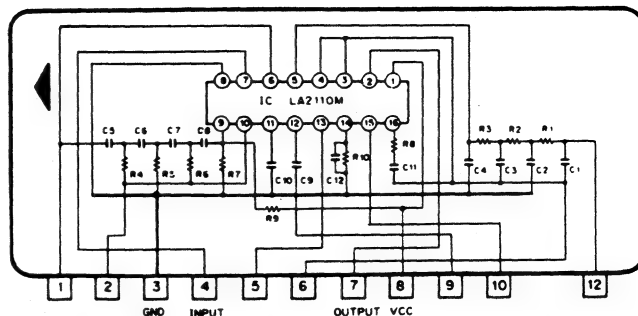
CWW1091



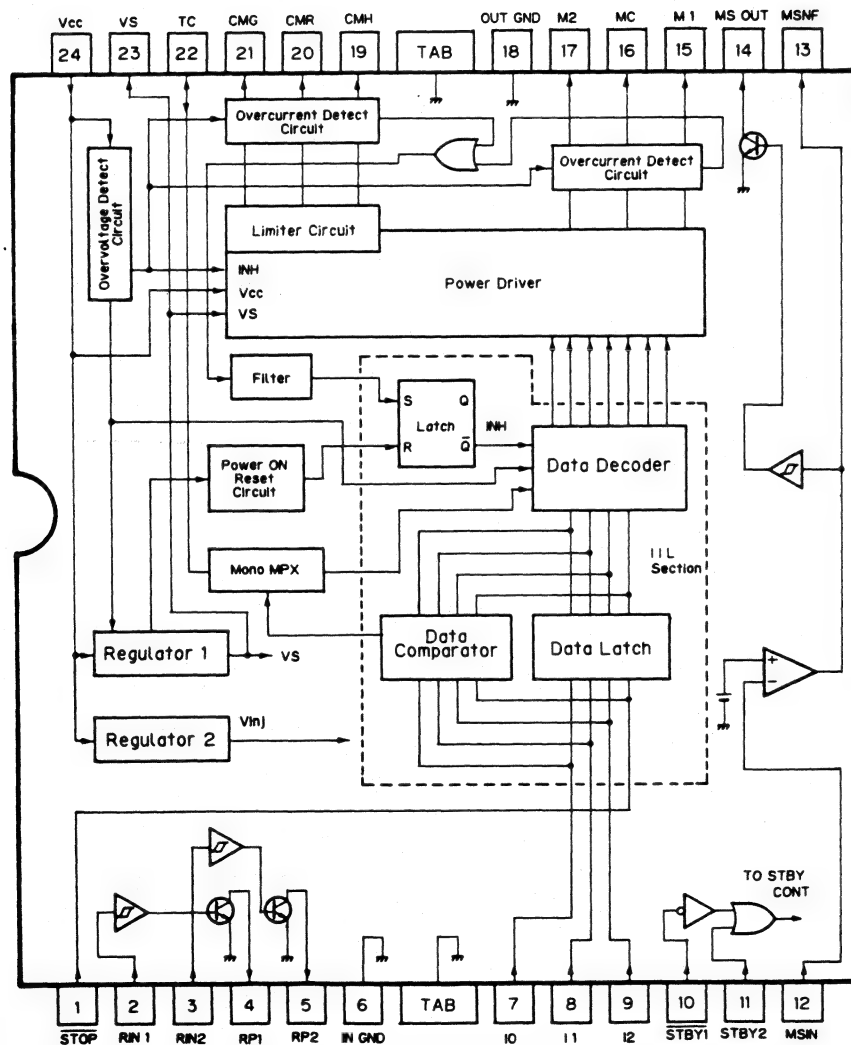
AN6540



KHA115



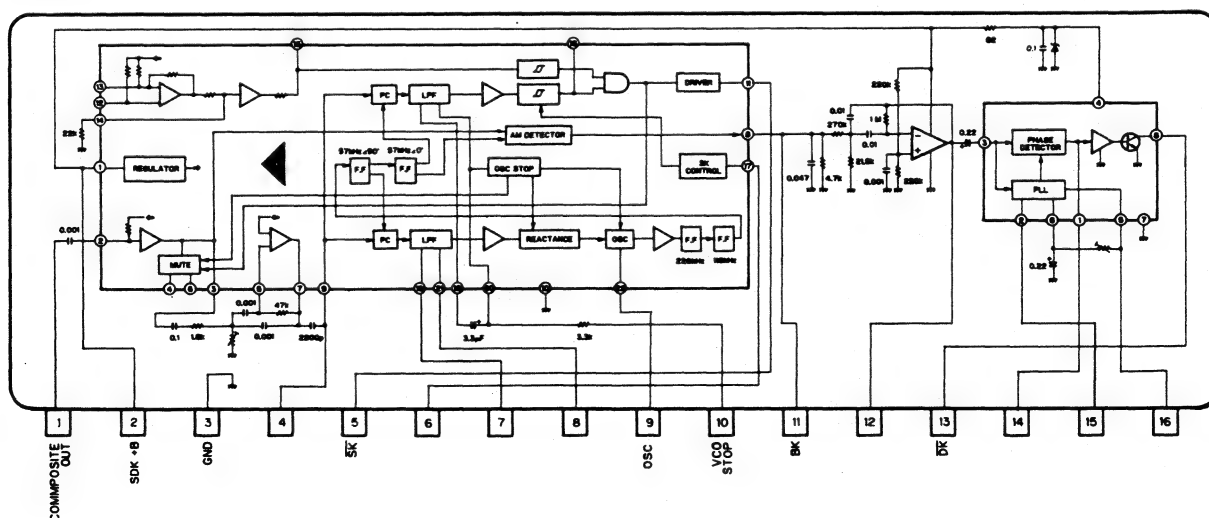
PA3022



●Pin Functions (PA3022)(Deck Driver)

Pin No.	Pin Name	I/O	Function and Operation
1	STOP	Input	Motor control logic input pin — switches CMH output off at active low.
2	RIN1	Input	Input pin for reel unit rotation sensor (MR1).
3	RIN2	Input	Input pin for reel unit rotation sensor (MR2).
4	RP1	Output	Output pin for wave form signal from reel sensor input 1 (Pin 2).
5	RP2	Output	Output pin for wave form signal from reel sensor input 2 (Pin 3).
6	IN GND	—	Low signal system ground pin.
7	I0	Input	Motor control logic input pin.
8	I1	Input	
9	I2	Input	
10	STBY1	Input	Standby control — switches IC power circuit off at active low.
11	STBY2	Input	Standby control — switches IC power circuit off at active high.
12	MSIN	Input	Input pin for MS amp.
13	MSNF	Output/Input	MS amp output and MS Schmitt circuit input.
14	MSOUT	Output	MS Schmitt circuit output — when signal level at MSNF pin exceeds 0dBm, pulse is outputted open when below 0dBm.
15	M1	Output	Drive output “+” pin for head drive motor M1.
16	MC	Output	Drive output common pin for drive motors M1 and M2.
17	M2	Output	Drive output “+” pin for drive motor M2 (“FF/REW” switching gear).
18	OUT GND	—	Motor drive circuit ground pin.
19	CMH	Output	Drive output H (+) pin for capstan motor M3. Output voltage: During speed control: approx. VCC-2V During loading: 7V During eject: 0V
20	CMR	Output	Drive output R pin for capstan motor M3. Output voltage: During speed control: open During loading: 0V During eject: 7V
21	CMG	Output	Drive output GND (–) pin for capstan motor M3. Output voltage: During speed control: 0V During loading and eject: open
22	TC	Output	Pin for capacitor for setting timer to switch power transistor off in a set time when logic inputs 10, 11, 12 change.
23	VS	Output	Power source for reel rotation sensor — approx. 7V.
24	VCC	Input	IC power supply pin.

KHA142



13. SECRET CODE

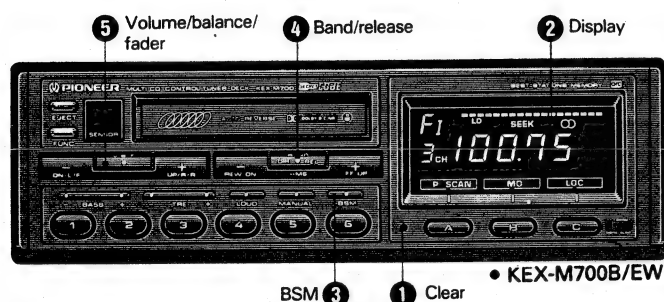
This unit is equipped with a secret code function. The secret code (4-digit) electronically locks the unit to reduce the danger of theft.

The code is preset to **0000** at the time of purchase, and the unit can be used normally without altering the code as preset. It is recommended, however, that the user change the code to another value to take full advantage of the anti-theft properties of this system.

Once a code is set, the unit will operate normally without input of the secret code, even if the ignition of the vehicle is switched OFF and then ON again. Should power to the unit be interrupted due to a battery change, repairs, however, the unit will fail to operate when power is restored unless the preset secret code is first entered. Three consecutive wrong inputs of the code will cause the unit to lock electronically to accept no input of code for three hours. Once operation is restored, three more wrong code inputs result in another three hours of electronic lock up. This feature helps to prevent breaking of the secret code through sequential or random input.

These features mean that once the power supplied to the unit is completely cut, further operation is impossible except for those who know the secret code. This makes the unit unuseable if stolen, thus reducing the danger of theft.

- If a secret code is registered to use the quick release function, it must be input each time the unit is removed or installed.
- When taking the unit to a service station for repair, be sure to either tell the service personnel of the registered code or return the value to **0000**.
- Should you forget your registered secret number, consult your local service station taking along a such proof of purchase and ownership as the original receipt, etc.



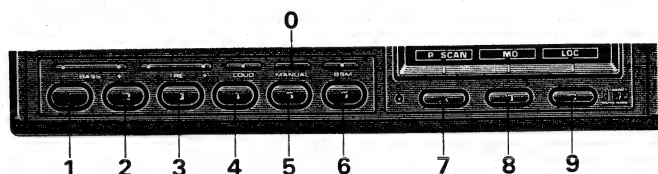
Registering the Secret Code

The secret code should be registered after all connection and installation procedures are complete.

1. Switch the ignition key of the vehicle to ON or ACC. Press the clear button ① with a thin pointed object. Doing so causes **PASS** to appear on the display ② for 1 minute.
2. Press the volume/balance/fader button ⑤ while **PASS** is shown on the display ②.
3. The message **CODE** will flash on the display ② to indicate that secret code registration is now possible. During this period, the buttons illustrated below become numeric input buttons (0-9) for the purpose of secret code registration.

Accessory Sticker and Card

- Affix the sticker on a window of the vehicle in which the unit is installed to inform potential thieves of the anti-theft function of the unit.
- Write the secret code, unit model number, and unit serial number on the card and store it in a safe place outside of the vehicle itself. The serial number of this device is located on the bottom of the unit. This information can then be made available to the police and your PIONEER service station should your unit be stolen.



4. Use the numeric input buttons to register the 4-digit secret number of your choice.
- If an input error is made, simply reinput the correct secret code from the beginning. The last four values input are registered as the secret code.
5. The entered value is registered as the secret code by pressing the band/release button ④ after input is complete. The display ② will be cleared once this is done and normal operation of the unit will be possible.

Interruption of the Power Supply

Interruption of the power supplied to the unit caused by battery replacement, repairs of the unit causes the message **CODE** to flash on the display ② once power supply is resumed and the ignition key of the vehicle is switched to ON or ACC. At this time the previously registered secret code should be entered using the following procedures:

1. Use the numeric input buttons (see "Registering the secret code") to enter the previously registered 4-digit secret code.

2. Press the band/release button ④. The message *PASS* will appear on the display ② for 1 minute, and normal operation will resume if the number entered matches the secret code registered before the power to the unit was interrupted. If the two numbers do not match, *CODE* will flash on the display ② again and the unit will await input of the correct value.

Anti-theft Function

Three consecutive inputs of values which do not match the previously registered secret code activates an error timer causing the message *ERR* to appear on the display ②. At this time, all operations, including further code input, become impossible for 3 hours (uninterrupted power supply). At the end of the 3-hour period, the message *CODE* appears on the display ②. The anti-theft function will operate for all subsequent input until the correct value is entered.

Changing the Secret Code

1. While pressing the BSM button ③, turn the ignition key to ON or ACC.
2. The message *CODE* will flash on the display ②, indicating that the unit is waiting for input of a secret code.
3. Use the numeric input buttons (see "Registering the secret code") to enter the previously registered 4-digit secret code.

4. Press the band/release button ④. The message *PASS* will appear on the display ② for 1 minute, and normal operation will resume if the number entered matches the secret code registered before the power to the unit was interrupted. If the two numbers do not match, *CODE* will flash on the display ② again and the unit will await input of the correct value.
5. Press the volume/balance/fader button ⑤ while *PASS* is shown on the display ②.
6. The message *CODE* will flash on the display ② to indicate that it is now possible to change the registered secret code.
7. Use the numeric input buttons to register the 4-digit secret number of your choice.
8. The entered value is registered as the new secret code by pressing the band/release button ④ after input is complete. The display ② will be cleared once this is done.

14. GENERAL GUIDE (Audio Control)



① Volume/Balance/Fader Control Button

Volume Control

Press the (+) side to increase volume and the (-) side to decrease volume.

Balance Control

Press the volume/balance/fader switch ③ and the balance adjustment display will appear for about five seconds. During this period, press the (+) side to shift the balance to the right speaker, or the (-) side to shift the balance to the left speaker. The volume level display will return after about five seconds.

Fader Control

This control is only used in 2-amp 4-speaker systems to adjust the balance between the front and rear speakers. Press the volume/balance/fader switch ③ and the fader adjustment display will appear for about five seconds. During this period, press the (+) side to shift the balance to the rear speakers, or the (-) side to shift the balance to the front speakers. The volume level display returns after about five seconds.

② Remote Controller Sensor

③ Volume/Balance/Fader Switch (V/B/F)

Press to switch the display in the following sequence:

Volume → Balance (BAL) → Fader (FAD)

The balance and fader displays are shown for about five seconds, and you can use the volume/balance/fader control button ① during this time to adjust the balance between the speakers. The volume level display returns after about five seconds.

④ Clear Button

Though not a normal occurrence, the microprocessor which controls the operation of this unit can be bothered by electrostatic noise. This generally is indicated by such symptoms as no power being supplied when you switch the unit on, failure of the buttons and controls, or an abnormal display. Should this happen, press the clear button with a thin, pointed object to reset the microprocessor. Note that doing so also resets all audio controls, so you will have to make any desired settings again. Pressing this button causes the message *CODE* to appear on the display. Input the previously registered secret code at this time. This operation deletes all the previous memories like the frequencies stored in preset.

⑤ Loudness Button

Press to strengthen both high and low notes when listening at a low volume setting.

⑥ Treble Control Button

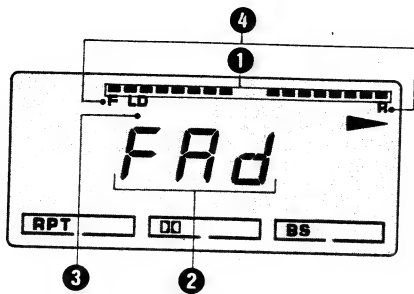
Press the (+) side to increase the treble effect and emphasize high notes, and the (-) side to decrease the treble effect. The treble display *TRE* appears whenever you adjust the treble. The volume level display returns after about five seconds.

⑦ Bass Control Button

Press the (+) side to increase the bass effect and emphasize low notes, and the (-) side to decrease the bass effect. The bass display *BASS* appears whenever you adjust the bass. The volume level display returns after about five seconds.

- When adjusting balance, fader, treble, or bass, it stops automatically at the center position.

15. READING the DISPLAY (Audio Control)



1 Volume/Balance/Fader/Bass/Treble Displays

Volume

The current volume level is indicated by blocks, with the number of blocks increasing as the volume level is raised. If you press the attenuator button on the remote controller, the volume is cut to 1/10 of its current setting, and this condition is indicated by the display flashing.

Balance

While the volume display is being shown, press the volume/balance/fader switch once to show the balance between the left and right speakers. This display is indicated by the letters **BAL**, and remains shown for about five seconds before returning to the volume display.

Fader (4-speaker system)

While the volume display is being shown, press the volume/balance/fader switch twice to show the balance between the front and rear speakers. This display is indicated by the letters **FAD**, and the blocks above the F indicate the setting of the front speakers, while those above the R show the setting of the rear speakers. The fader display remains shown for about five seconds before returning to the volume display.

Bass

Press the (+) or (-) side of the bass control button to show the current bass level setting. This display is indicated by the letters **BASS**, and remains shown for about five seconds before returning to the volume display.

Treble

Press the (+) or (-) side of the treble control button to show the current treble level setting. This display is indicated by the letters **TRE**, and remains shown for about five seconds before returning to the volume display.

2 Balance/Fader/Bass/Treble Displays

The letters that appear here indicate the current mode selected.

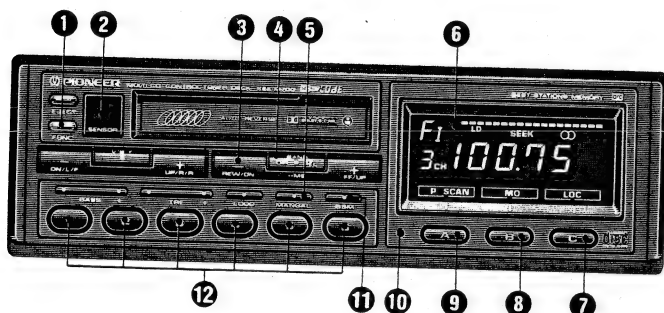
3 Loudness Indicator

Press the loudness button and the "LD" indicator appears on the display.

4 Front (F)/Rear (R) Indicators

These indicators appear when the fader mode is selected.

16. GENERAL GUIDE (Tuner)



• KEX-M700B/EW

1 Mode Button (FUNC)

Press to switch the mode of the unit as follows:
Cassette deck → Tuner → Power off

- When your system includes a separately available multi-play CD player (such as CDX-M100), pressing this button switches the mode in the following sequence:
Multi-play CD player → Cassette deck → Tuner → Power off

2 Remote Controller Sensor

3 Tuning/Local Seek Sensitivity Button

Tuning

When manual mode is selected by seek/manual button ⑩, press the (+) side to tune to a higher frequency and the (-) side to tune to a lower frequency. FM frequencies change in 50 kHz steps, while MW frequencies change in 9 kHz steps, and LW frequencies change in 1 kHz steps. The frequency changes at high speed when you hold either side of this button down.

Local Seek Sensitivity

Press the (+) side or (-) side with the local station button ⑦ holding down for about two seconds to change the local seek sensitivity level. You can set the sensitivity to one of four levels for the FM band, and two levels for the MW/LW band.

4 Band/Release Button

Press to change the frequency band in the following sequence:
FI (FM1) → FI (FM2) → FI (FM3) → M (MW)/L (LW)

This button is also used to cancel the Best Stations Memory (BSM) operation.

5 Seek/Manual Button

Press it in seek mode (indicated by "SEEK" on the display) to switch to manual mode. Pressing again switches back to seek position.

6 Display

7 Local Station Button (C)

Press to switch the threshold level for the seek tuning (indicated by a bar above "LOC" on the display). For details, see "Using Local Seek Tuning".

8 FM Stereo/Monaural Button (B)

Press to switch between FM stereo and monaural (indicated by a bar above "MO" on the display). Generally, the monaural setting is only used when there is a large amount of noise present during stereo reception.

9 Preset Scan Button (A)

Press to sequentially tune in the frequencies preset to the preset button memory for eight seconds each (operation indicated by a bar above "P SCAN" on the display). Press again to cancel the scan operation and stay at the frequency currently tuned in.

10 Clear Button

① Best Stations Memory (BSM) Button

Hold down for about two seconds to perform the Best Stations Memory function (*BSM* appears on the display).

② Preset Tuning/Memory Buttons (1–6)

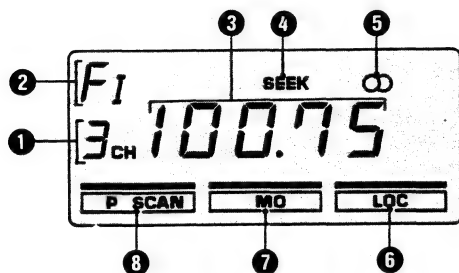
Preset tuning

Once frequencies stored in preset buttons, they can be recalled instantly by a touch of the respective button.

Memory

You can memorize 18 FM frequencies (6 for FM1, 6 for FM2, 6 for FM3) and 6 MW/LW frequencies in the preset buttons by pressing one of 6 buttons for about two seconds.

17. READING the DISPLAY (Tuner)



① Preset Number Display

Press a preset button and the number of the button pressed is displayed.

② Band Indicator

Each press of the band/release button switches the band and changes this indicator in the following sequence:

FI → FII → FIII → M/L

FI, FII or FIII should be displayed if you wish to listen to FM, while M/L should be displayed for MW/LW radio.

③ Frequency/Local Seek Threshold Level Displays

When you switch the power of the tuner on, the currently tuned frequency appears on the display. If you hold down the local station button for about two seconds, the current level setting appears until you release the button.

④ Seek Indicator

The "SEEK" indicator appears on the display when you set the seek/manual button in the seek tuning position.

⑤ FM Stereo Indicator

This indicator appears when an FM stereo broadcast is received.

⑥ Local Station Indicator

The bar above the "LOC" indicator appears on the display when you press the local station button.

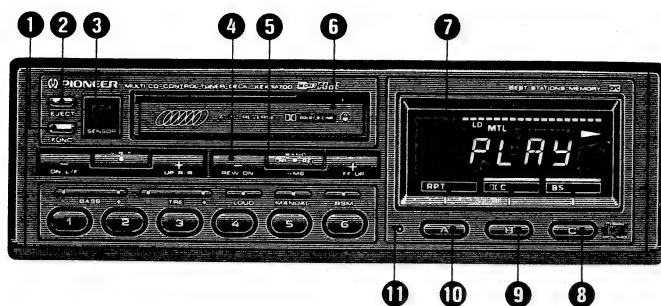
⑦ FM Monaural Indicator

The bar above the "MO" indicator appears on the display when you press the FM stereo/monaural button to switch to monaural reception during an FM broadcast.

⑧ Preset Scan Indicator

The bar above the "P SCAN" indicator appears on the display when you press the best stations memory/preset scan button.

18. GENERAL GUIDE (Cassette Deck)



• KEX-M700B/EW

1 Mode Button (FUNC)

Press to change the mode of the unit in the following sequence:
Cassette deck → Tuner → Power off

2 Eject Button

Press to eject the cassette tape loaded in the cassette player.

3 Remote Controller Sensor

4 Fast Forward (+)/Rewind (-) Button

Press the (+) side for fast forward and the (-) to rewind the tape. Press this button twice to perform the music search operation, and a third time to cancel the music search operation.

5 Program (DIR)/ Release (REL) Button

Press to switch from Side A to Side B of a tape or vice versa. This button also cancels the music search, music repeat, fast forward, and rewind operations.

6 Tape Slot

7 Display

8 Blank Skip Button (C)

Press to automatically skip over any unrecorded portion of a tape that is longer than about 10 seconds (indicated by a bar above "BS" on the display). Normal play resumes automatically when the beginning of the next selection is reached.

9 Dolby NR Button (B)

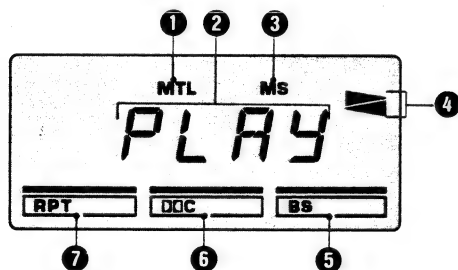
Press when playing back a tape recorded using the Dolby NR system. Each press switches the position in the following sequence:
Dolby B-type NR (indicated by a bar above $\square\square$ on the display) → Dolby C-type NR (indicated by C next to $\square\square$ on the display) → Dolby NR off

10 Music Repeat Button (A)

Press for repeat play of the selection currently being played (operation indicated by "RPT" on the display). You can cancel the music repeat function by pressing the release button or by pressing the music repeat button once again.

11 Clear Button

19. READING the DISPLAY (Cassette Deck)



1 Metal Tape Indicator

An Auto Tape Selector Mechanism automatically switches the equalization (70μs/120μs) in accordance with the cassette tape loaded into the deck. The "MTL" indicator appears when a metal tape or chrome tape is loaded. Nothing is shown when a normal tape is loaded.

2 Tape Play/Fast Forward/Rewind Indicators

The **PLAY** indicator appears during tape play. Press the (+) side of the fast forward (+)/rewind (-) button and the **FF** indicator flashes to indicate fast forward. Press the (-) side and the **REW** indicator flashes for rewind.

3 Music Search Indicator

This indicator flashes on the display while either the fast forward **FF** or rewind **REW** indicator is shown to indicate the music search functioning.

4 Tape Side Indicator

The \blacktriangleright on the display indicates that the upper track of the tape is being played, while \blacktriangleleft indicates that the lower track is being played.

5 Blank Skip Indicator

The bar above the "BS" indicator appears on the display when you press the Blank Skip button. The **PLAY** indicator on the display changes to flashing **FF** when blank skip starts functioning.

6 Dolby NR Display

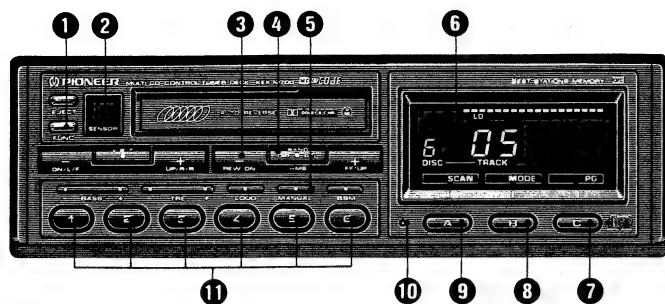
Press the Dolby NR button to change this indicator in the following sequence:

Bar over $\square\square$ (Dolby B-type NR) → Bar over $\square\square C$ (Dolby C-type NR) → $\square\square$ only (Dolby NR off)

7 Music Repeat Indicator

The bar above the "RPT" indicator appears on the display when you press the music repeat button.

20. GENERAL GUIDE (Multi-Play CD Control)



• KEX-M700B/EW

① Mode Button (FUNC)

Press to switch the mode of the unit as follows:

Multi-play CD player → Cassette deck → Tuner → Power off

- Immediately after the multi-play CD player is connected to the system, it may not operate properly (i.e. the system will not enter the multi-play CD player mode when you press the mode button). In this case, press the clear button and attempt operation again.

② Remote Control Sensor

③ Track Number Search/Fast Forward, Reverse Button

Use button ⑤ to select the mode of track number search or fast forward/reverse.

Track Number Search

Press the (+) side of the button to increase the track number or the (-) side to decrease the track number. Holding down either side of the button will cause the track number to change at high speed. This button is also used to select track numbers for program play.

Fast Forward (+)/Reverse (-)

Pressing the (+) side advances the selection at high speed, while pressing the (-) side reverses the selection at high speed. Normal play resumes when this button is released. Holding down either side continues high speed operation even after the preceding or following selection is entered.

④ Program Play/Release Button

This button is also used to cancel the program play, music repeat, random play and track scan functions.

⑤ Track Number Search/Fast Forward, Reverse Select Button

Press to switch the contents of the display between the TRACK display (for track number search) and the elapsed play time (for fast forward/reverse).

⑥ Display

⑦ Program Button (C)

Press to program the playback sequence of the selections from a disc. Press once to show the programming display ("DISC-TRACK" and "PG" indicators flash), and then specify a selection using the disc number button ⑩ and track number search button ⑤. Finally press the program button again. You can program a maximum of 32 steps by repeating this operation. The program button is also used to change or delete the program sequence.

⑧ Music Repeat/Random Play Button

Press to switch the function of the unit in the following sequence:

Music repeat (*RPT*) → Random play (*RAP*) → Normal play
A bar appears above the "MODE" indicator when Music Repeat or Random Play is selected.

Music Repeat

Press until the *RPT* indicator appears on the display to repeat the current selection. Press the release button at any time to cancel the Music Repeat function. When this function is not being used, discs in the currently loaded magazine play repeatedly from beginning to end.

Random Play (RA.P)

Press twice until the *RAP* indicator appears on the display for random play of the selections on the current disc. The microprocessor built into the unit automatically selects the tracks on the current disc in a random order for playback. Press the release button at any time to cancel the Random Play function.

⑨ Track Scan Button (A)

Press to sequentially play back the beginning (about 10 seconds) of each selection on the current disc (operation indicated by a bar above "SCAN" on the display). Press the release button ④ at any time to cancel the scan operation and play the current selection. Normal play will also resume after the Track Scan function has scanned all of the selections on the disc.

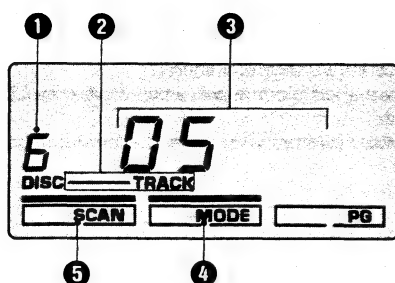
⑩ Clear Button

⑪ Disc Number Buttons (1-6)

Press to specify the number of a disc loaded in the magazine for playback or programming.

- Pressing these buttons has no effect when the selected tray number does not contain a disc.

21. READING the DISPLAY (Multi-Play CD Control)



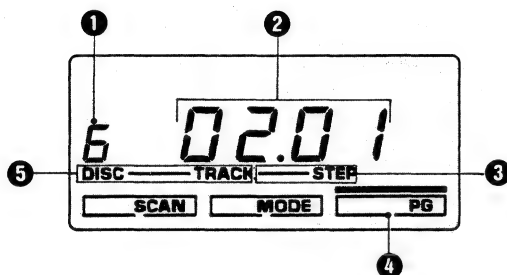
Multi-Play CD Control I

① Disc Number

Shows the number of the disc currently selected using the disc number buttons.

② Track Indicator

Shows the "—TRACK—" indicator when the track number search/fast forward, reverse select button is in the Track Number search position.



Multi-Play CD Control II (Program Memory)

① Disc Number

Shows the number of the disc currently selected using the disc number buttons.

② Track Number/Step Number/All Track/Program Play/Program Clear Indicators

Track Number Display

Shows the number of the track (above the "TRACK" indicator) selected using track number search button.

③ Track Number/Elapsed Play Time/Music Repeat/Random Play Indicators

Track Number/Elapsed Play Time Displays

Each press of the manual function button switches between display of the track number and elapsed play time (minutes and seconds) for the current selection.

Music Repeat/Random Play Indicators

Each press of the music repeat/random play button switches the display in the following sequence:

RPT indicator → *RAP* indicator → Normal playback indicator

④ Mode Indicator

A bar appears above the "MODE" indicator when the *RPT* or *RAP* indicator is shown on the display when you press the music repeat/random play button.

⑤ Track Scan Indicator

A bar appears above the "SCAN" indicator when you press the track scan button.

Step Number Display

Shows the current step number (above the "STEP" indicator) during program play and when using the program memory.

All Track Indicator (*RL*)

This indicator appears above the "TRACK" indicator when all of the contents of a single disc are stored in memory at one time.

Program Play Indicator (*PGP*)

Press the program play/release button and this indicator appears for about two seconds at the start of Program Play.

Program Clear Indicator (*PGL*)

Press the program play/release button for approximately two seconds during disc play and this indicator appears for about two seconds to indicate that the program stored in memory has been cleared.

③ Step Indicator

The indicator "—STEP—" appears during program play and when the program memory is being used.

④ Program Indicator

The indicator "PG" flashes and a bar appears above "PG" on the display when the program memory is being used.

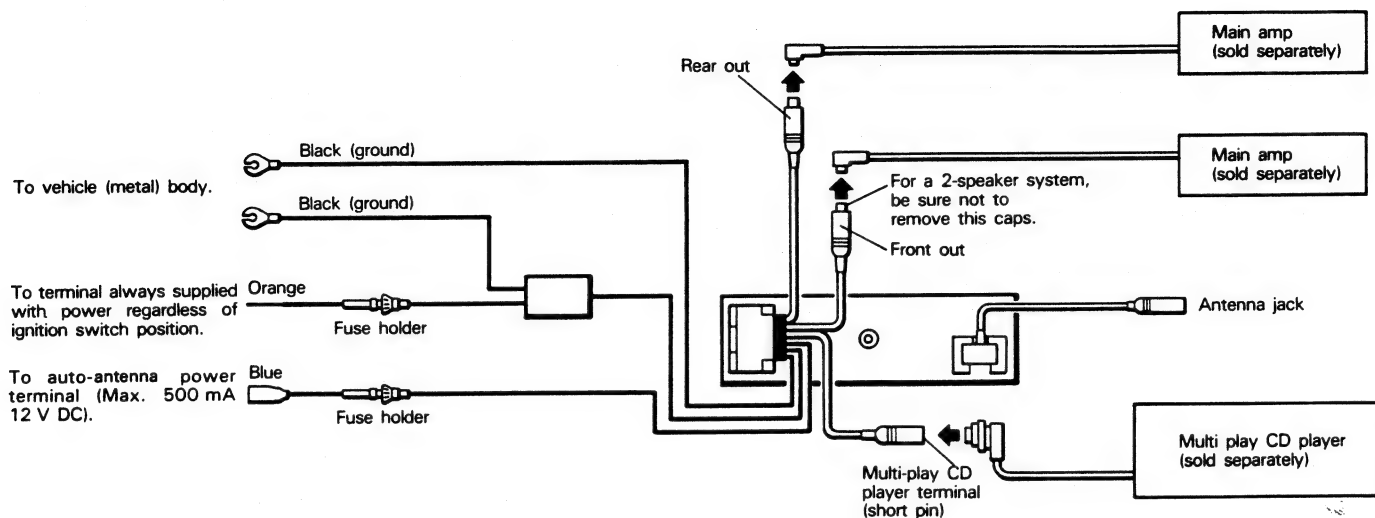
⑤ Disc/Track Indicator

The indicator "DISC—TRACK" appears during program play. This indicator flashes when the program memory is being used.

22. CONNECTING the UNITS

- Before making final connections, make temporary connections then operate the unit to check for any connecting cord problems.
- Refer to the owner's manual for details on connecting the various cords of the power amp and other units then make connections correctly.
- Be sure to connect the memory power supply lead (orange) to a terminal that is always supplied with power regardless of the vehicle's ignition switch position. If this connection is made incorrectly or is forgotten, the unit will not work at all.

- Don't pass that orange lead through a hole into the engine compartment to connect to the battery. This will damage the lead insulation and cause a very dangerous short.
- Always leave short pin in place when Multi-play CD player terminal is not used.
- For 2-speaker systems, wire the rear output cord to the main amp.



Service Manual

**ORDER NO.
CRT-468-0**

CASSETTE MECHANISM ASSEMBLY

CX-156/A, CX-156/B

- This service manual is for cassette mechanism assembly used in car stereo components.
- Refer to the service manual for individual models for details on sections other than the cassette mechanism assembly.

Model	Service Manual	Cassette Mechanism Assembly
FX-K5/EW	CRT-469	CX-156/A
FX-K5B/EW		CX-156/A
FX-K5SDK/WG		CX-156/A
FEX-55/US, CA, CS	CRT-471	CX-156/A
FEX-50/ES	CRT-470	CX-156/A
KX-E60/EW	CRT-476	CX-156/B

Model	Service Manual	Cassette Mechanism Assembly

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		7. ELECTRICAL PARTS LIST	14

1. REPLACEMENT OF PARTS IN CASSETTE MECHANISM

• Belt and capstan motor (M3) replacement

1. Remove the four screws and the cover. (Fig. 1)
2. The belt in Fig. 2 can be replaced. (Be sure that the belt is not greased and not twisted.)
3. To replace the capstan motor, remove the two screws shown in Fig. 2.

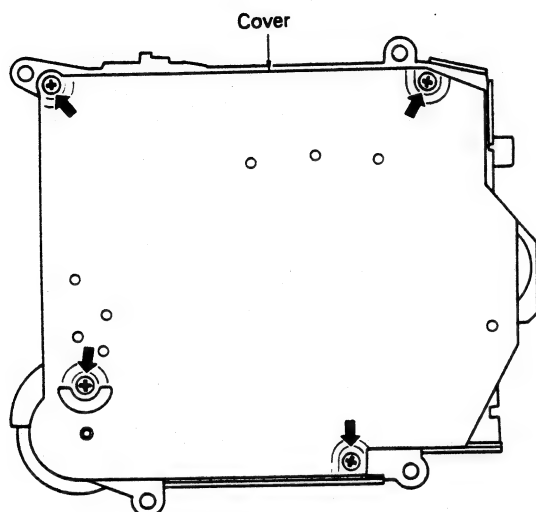


Fig. 1

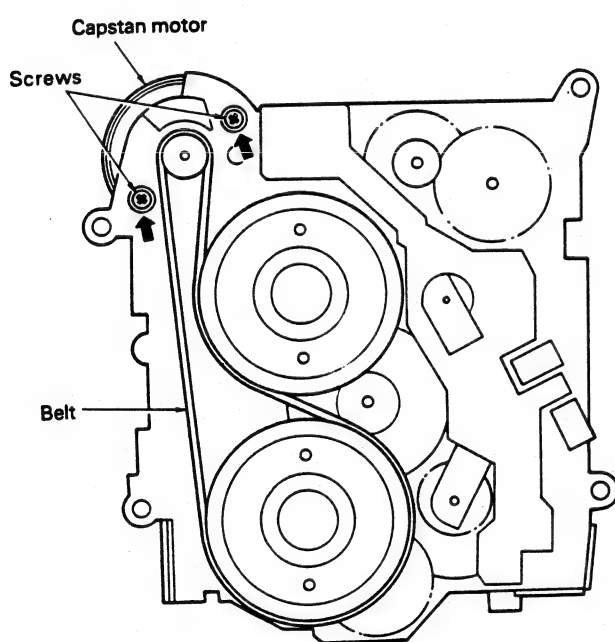


Fig. 2

• Cassette holder removal

1. Turn the capstan motor until the cassette holder drops down. (Do not turn the flywheel directly by hand.)
2. Remove the screw labeled "B", the collar and the spring.
3. Remove unit "A" and the cassette holder "D" and "E".

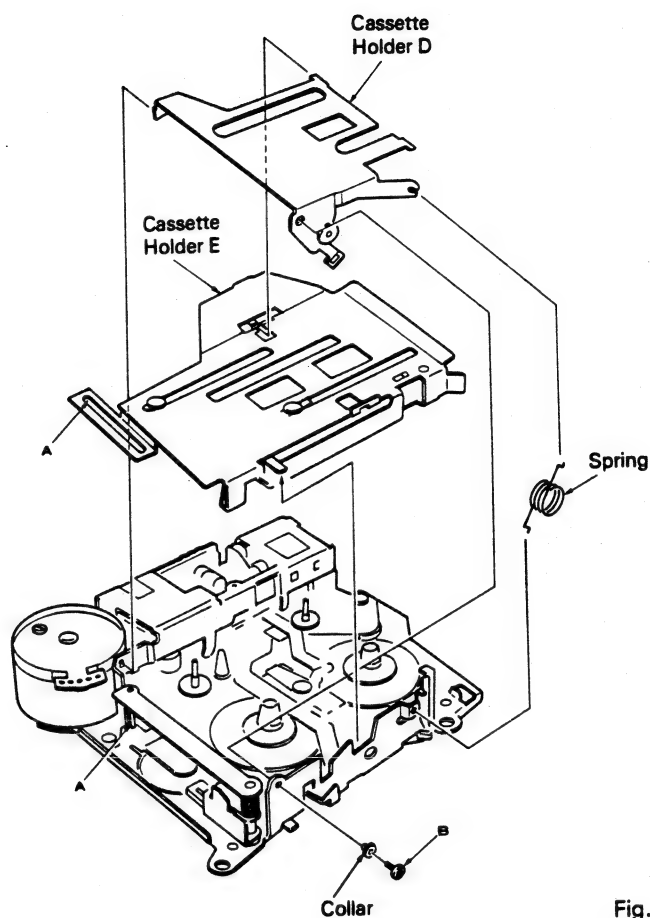


Fig. 3

• Head unit replacement

1. Remove the washer and spring.
2. Remove the screw labeled "F", and the head unit can be removed in the opposite direction.
3. Be careful of the following point during reassembly.
 - Put the head unit pins through the lever holes. (One in front and one in back.)

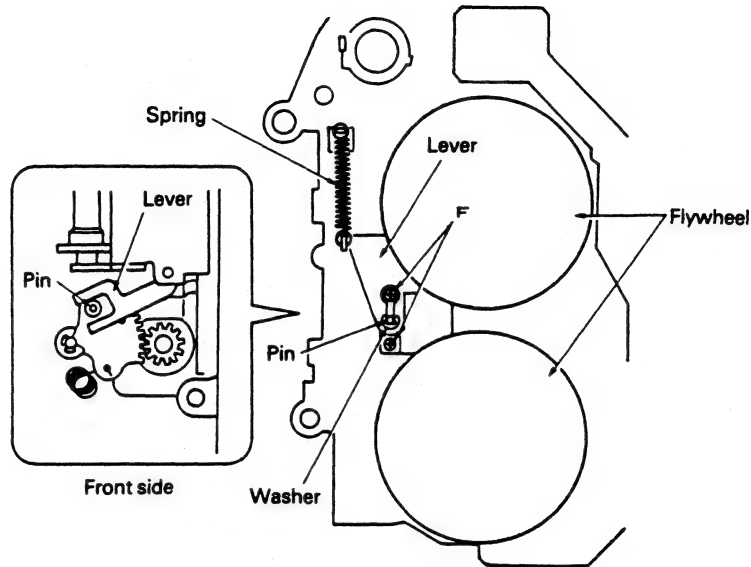


Fig. 4

• Sub-motor replacement (M1 and M2)

1. Remove the two screws labeled "G" and remove the P.C. board unit.
2. The sub-motor can be removed by removing the three screws indicated by the arrows.
3. Sub-motor 2 (for switching the FF/REW gear) can be replaced when the spacer has been removed. (The motor fits very snugly, so some force must be used to remove it.)
4. Sub-motor 1 (for turning and positioning the head) can be replaced by removing the belt, lock washer, pulley and two screws labeled "J".

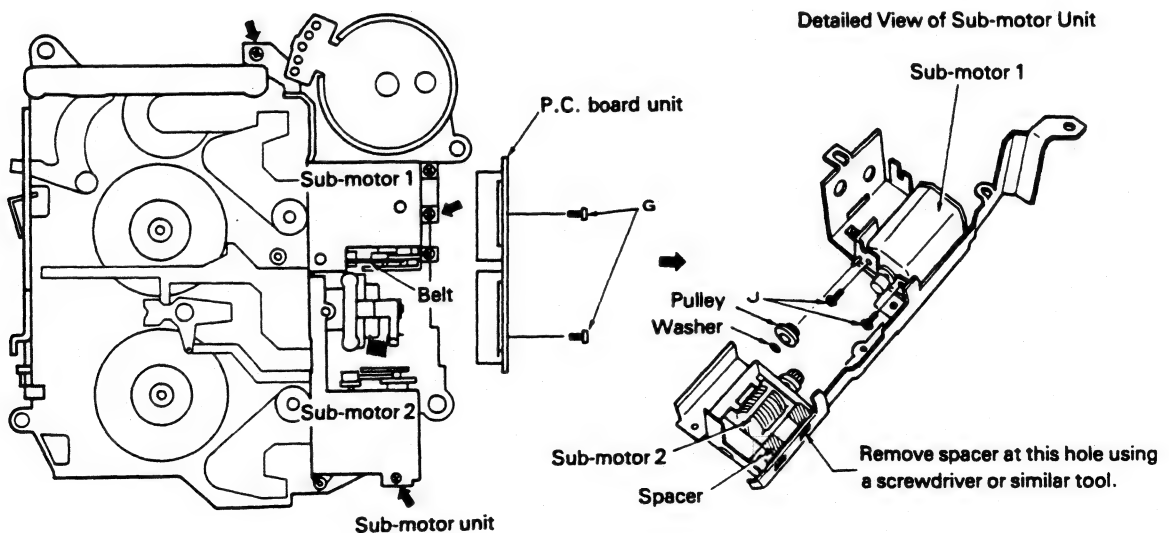
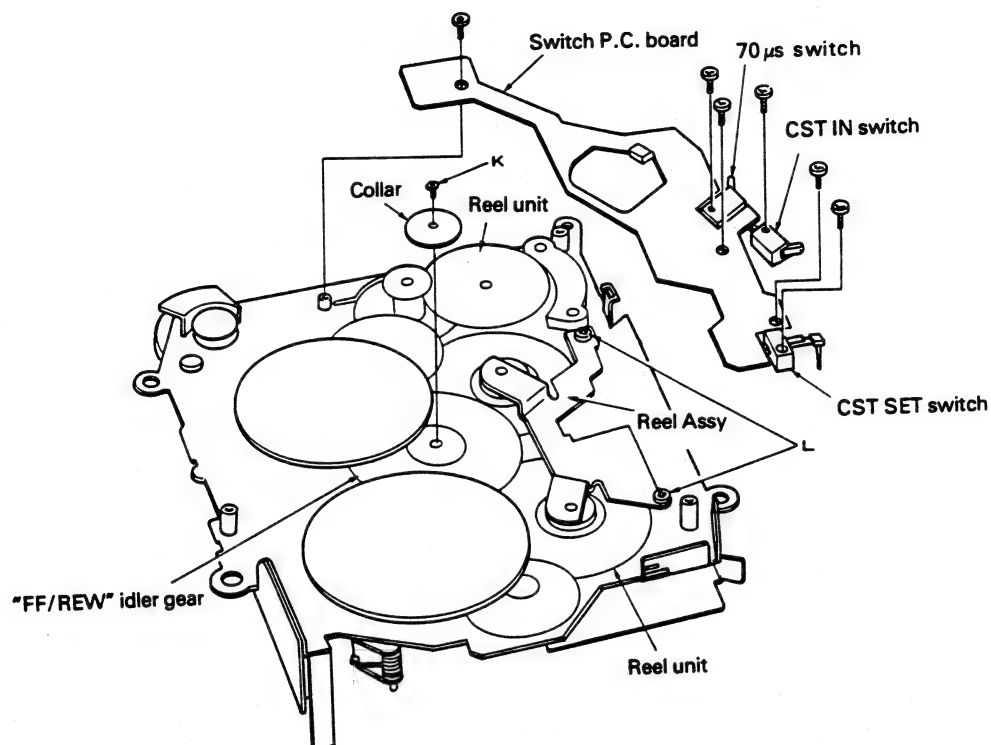


Fig. 5

• Reel unit replacement

1. Remove the six screws and the switch P.C. board.
2. Remove the screw labeled "K" and the collar and free the FF/REW idler gear.
3. The reel assy can be replaced by removing the two screws labeled "L" and removing the reel unit.

**Fig. 6**

2. MECHANISM DESCRIPTION

Cassette mechanism assy for CX-156/A is used in this mechanism description.

1. Outline of Mechanism

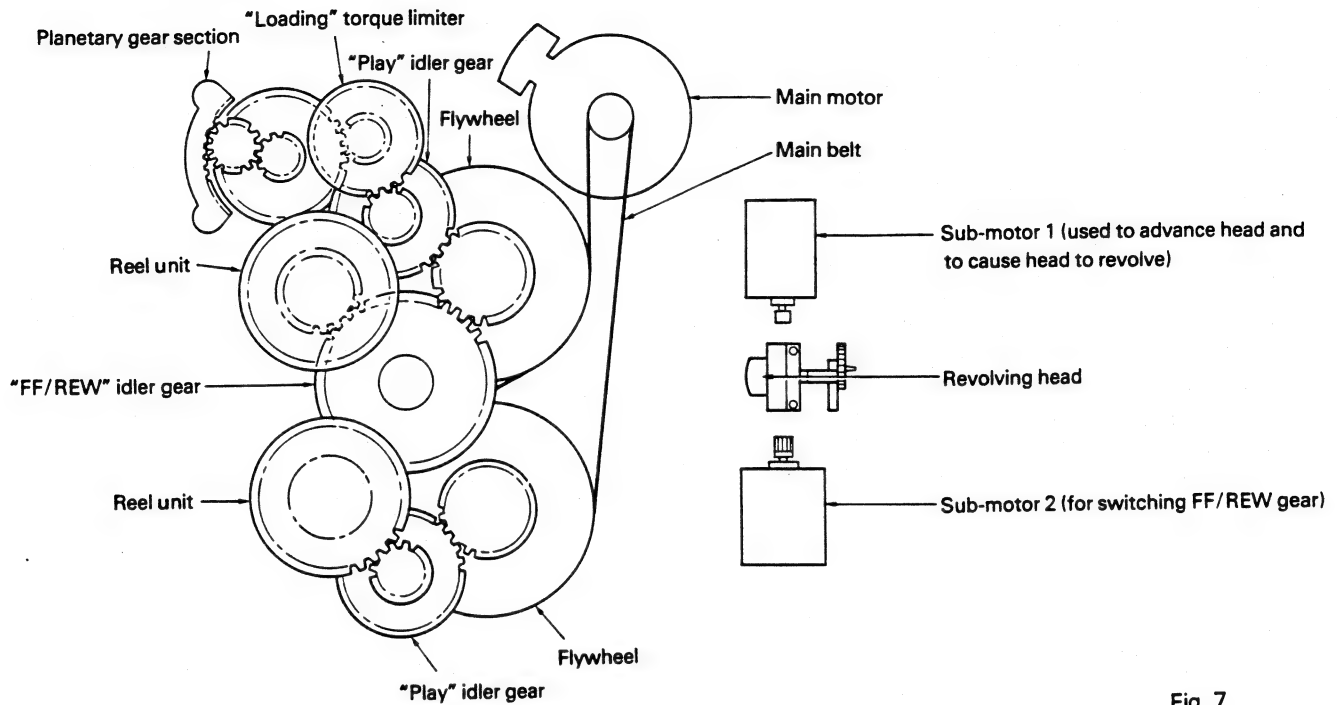


Fig. 7

2. Loading/Eject Function

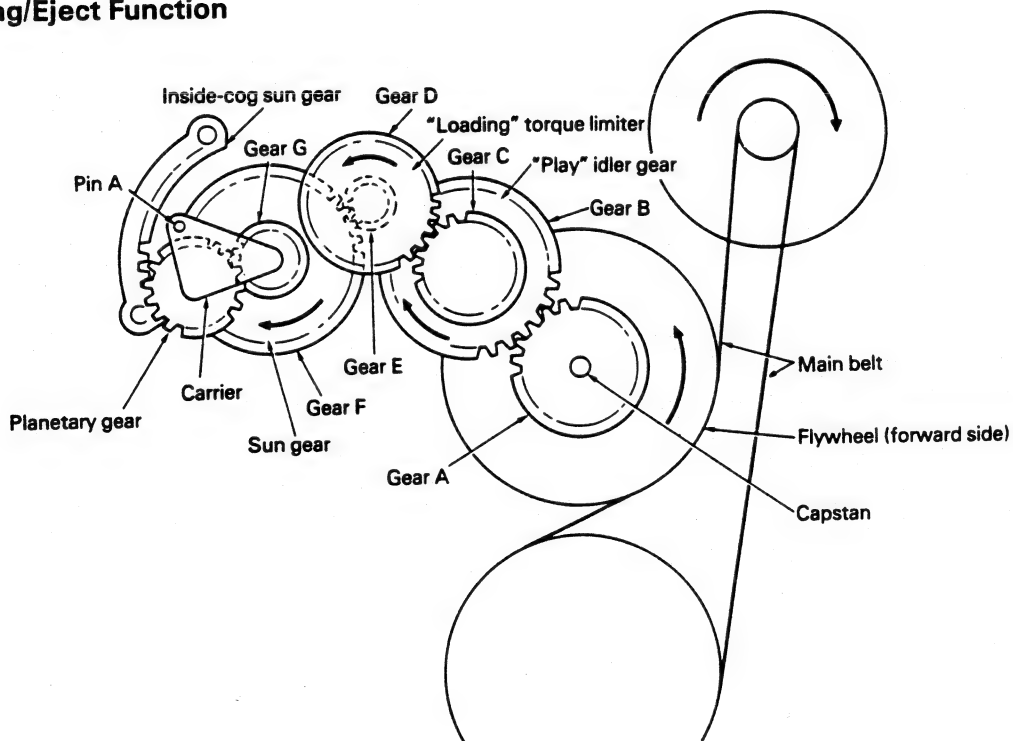


Fig. 8

3. Cassette Tape Load and Eject Mechanism

• Cassette tape loading operation

1. Push the cassette tape lightly in the direction indicated by the arrow. (As shown in Fig. 10, arm "A" and arm "B" connect to spring "A". These are also connected to common axis shaft "A", which is attached to the chassis surface and acts as a swivel. Pin "A", which is caulked to the planetary gear unit carrier, goes through the chassis and fits into the oblong hole of arm "B". Because pin "A" won't move as long as the capstan motor isn't moving, arm "B" won't move either.)
2. When a cassette tape is loaded, arm "A" moves in the direction indicated by the arrow and spring "A" loosens. Lever "A" also moves in the direction indicated by the arrow, and the catch at left of the lever releases arm "C". Arm "C" then turns counterclockwise and opens the CST IN switch. The capstan motor then begins turning forward.
3. The carrier then moves clockwise because the planetary gear moves along the inside-cog sun gear. Pin "A" which is caulked to the carrier also moves in the same direction. (Fig. 11) The movement of pin "A" is causing arm "B" to move counterclockwise. Arm "A" turns in the same fashion and the "A" unit of lever "A" draws the cassette tape in. (Fig. 9)

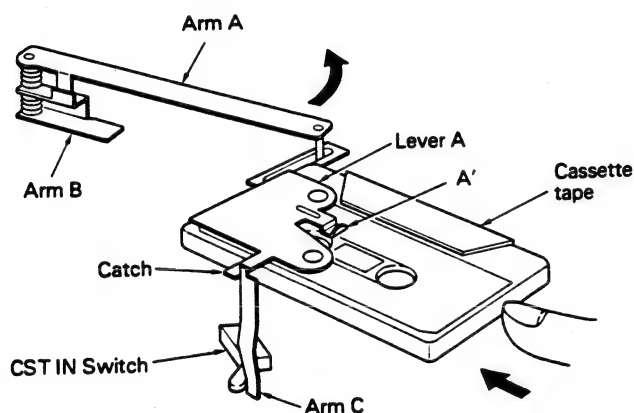


Fig. 9

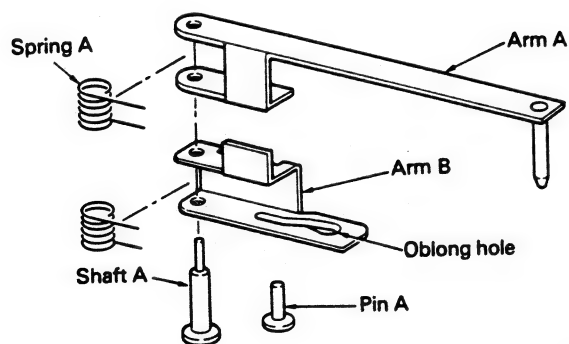


Fig. 10

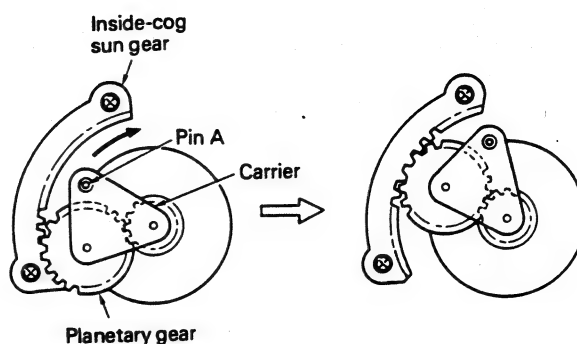


Fig. 11

4. The oblong hole of arm "B" is as shown in Fig. 12. The cassette tape draw-in process will be complete when the pin "A" degree of rotation is θ . Arm "B" will not move while the degree of rotation is θ' .

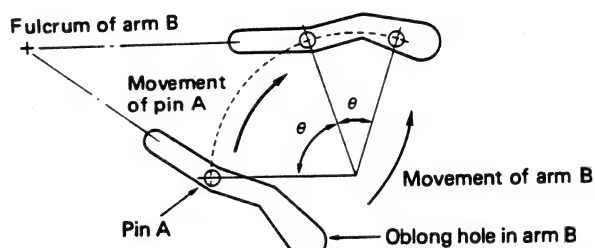


Fig. 12

5. As shown in Fig. 13, arm "C" (caulked to the chassis swivel) is fixed to pin "A" and when the degree of rotation is θ arm "C" is stationary, and when it is θ' arm "C" turns clockwise.

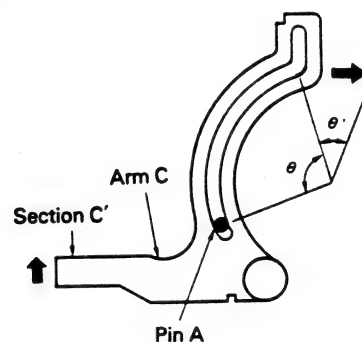


Fig. 13

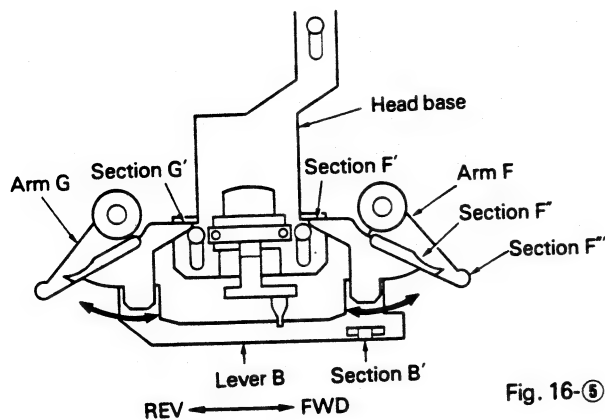


Fig. 16-5

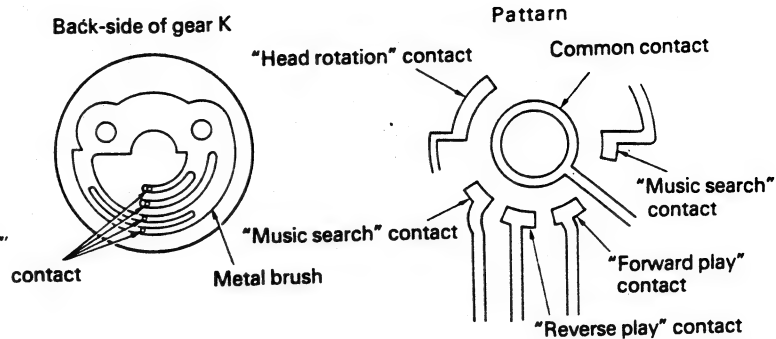


Fig. 16-6

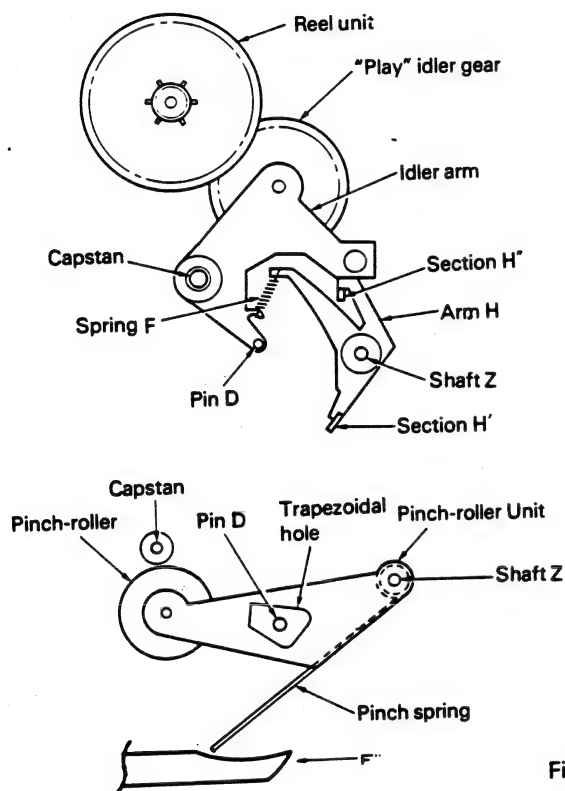


Fig. 17

1. The sub-belt from sub-motor 1 goes through pulley gear "H", gear "I", gear "J" and turns gear "K". Head turning and head base positioning take place using the "K" unit (the projecting unit) of gear "K" and pin "B". There is a metal brush attached to the back of gear "K" which detects the passing through of all patterns and common patterns and stops sub-motor 1. This controls the head positioning, the head turning, the contact pressure of the play idler gear and the contact pressure of the pinch roller.
2. Head turning at pin "B" takes place until gear "K" starts turning which brings the "K" part into contact with the lever "B", "B'" part. (Fig. 16-3)
3. Pin "B" engages with the arm "E" oval opening and rotates arm "E". The arm "E" sector gear is engaged with pin "C" and this turns the head. The head rotation pattern (Fig. 16-6) performs this operation inside a certain angle.
4. When gear "K" turns it also pushes the lever "B", "B'" part. The "B'" part turns arm "F" and arm "G" counter-clockwise and advances head base with the arm "G", "G'" part. (Fig. 16-2, 5)
5. After the head base goes beyond the MS pattern (Fig. 16-6) position, the arm "F", "F'" part pushes the pinch roller unit pinch spring and presses the pinch roller down onto the capstan. (Fig. 17)
6. Simultaneously, the arm "F", "F'" unit pushes the arm "H", "H'" part. The "H'" part lock releases when pushed, and the play idler gear comes into contact with the reel unit. Play operation begins because of this. (Fig. 16-5, Fig. 17)
7. When going from play to eject, first, the pinch roller disengages from the capstan, and then using the pinch roller unit trapezoidal hole, releases the idler arm from the reel unit by means of pin "D". After that, the "H'" unit again meshes with the idler arm and the "play" idler gear stops after completely disengaging from the reel unit.

5. FF/REW Operation

1. As with the head operations a brush is attached to the back of gear "P" and using patterns and the brush, position sensing takes place and this controls the FF/REW operation.
2. Sub-motor 2 goes through gears "L", "M" and "N" and turns gear "P". When gear "P" turns, arm "J" rotates by means of arm "J". Arm "I" rotates the FF/REW idler gear and engages it with the reel unit.

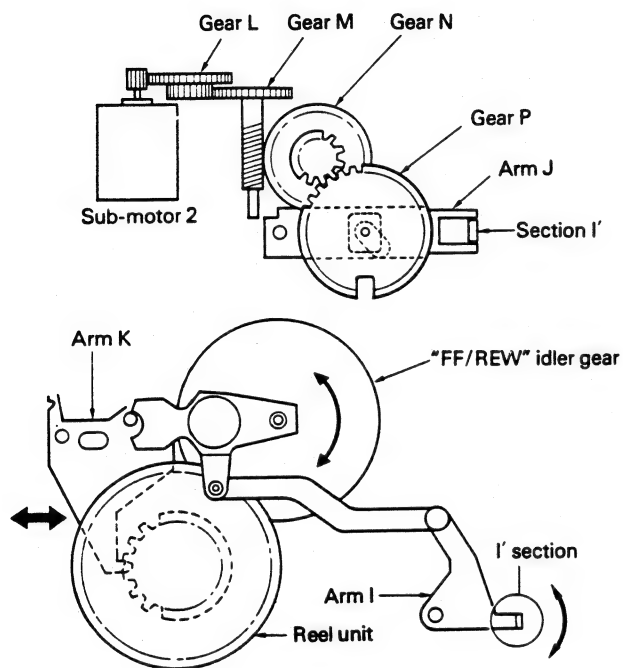


Fig. 18

3. ADJUSTMENT

3.1 AZIMUTH ADJUSTMENT

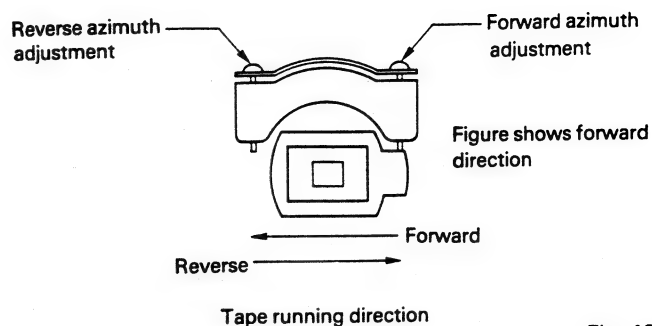


Fig. 19

• To Adjust

1. Play "A" side of STD-341A (10kHz, -20dB). Adjust each screw for maximum output in forward and reverse directions.
2. Play "B" side in forward and reverse directions to confirm adjustment.

3.2 TAPE SPEED ADJUSTMENT

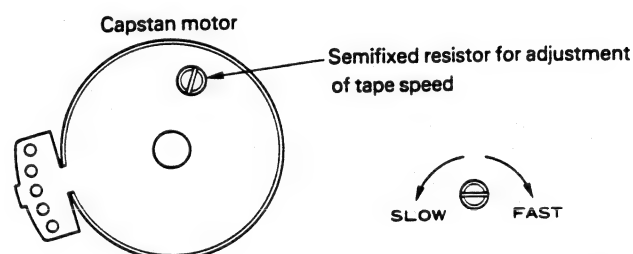
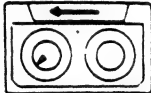
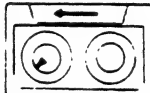
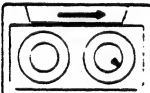
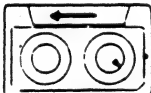


Fig. 20

• To Adjust

1. Reproduce STD-301 (3kHz, -10dB). Adjust the semifixed resistor so that the frequency counter shows 3,010Hz (+30Hz, -30Hz).

3.3 CHECK POINTS OF CASSETTE MECHANISM

<p>Confirm the following items when replacing parts of the cassette mechanism.</p>	<p>■ Tape speed deviation:</p> $3,000 \pm \frac{90}{30} \text{ Hz}$ $(4.76 \text{ cm/s} \pm \frac{3}{1} \%)$ <p>Using an STD-301, measure the speed at the start and end of winding and see that a deviation remains within the limits each time. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5~6 seconds.</p>	<p>■ Wow and flutter:</p> <p>Less than 0.15% (WMS)</p> <p>Using an STD-301, measure the wow and flutter at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5~6 seconds.</p>
<p>■ Fast forward and rewinding time:</p> <p>95 ~ 115 seconds</p> <p>Using a C-60, set to fast forward and rewind, and measure the time with a stop watch.</p>	<p>■ Winding torque:</p> <p>40 ~ 60g · cm</p>  <p>Using a cassette type torque meter (100 g · cm), measure the minimum value while in the play mode. Measuring time shall be 5 ~ 6 seconds.</p>	<p>■ F.F. torque:</p> <p>70 ~ 110g · cm</p>  <p>Using a cassette type torque meter (120 g · cm), measure the value when the tape stops in the F.F. mode.</p>
<p>■ REW torque:</p> <p>70 ~ 110g · cm</p>  <p>Using a cassette type torque meter (120 g · cm), measure the value when the tape stops in the REW mode.</p>	<p>■ Back tension torque:</p> <p>2.0 ~ 3.5g · cm</p>  <p>After setting in the REW mode without loading a cassette tape for 5 minutes, measure the back tension torque in the play mode, using a cassette type torque meter.</p>	<p>■ Cassette loading force:</p> <p>450 ~ 550 g</p> <p>Push the center of the cassette and measure the force with a tension meter (1 kg).</p>

4. EXPLODED VIEW

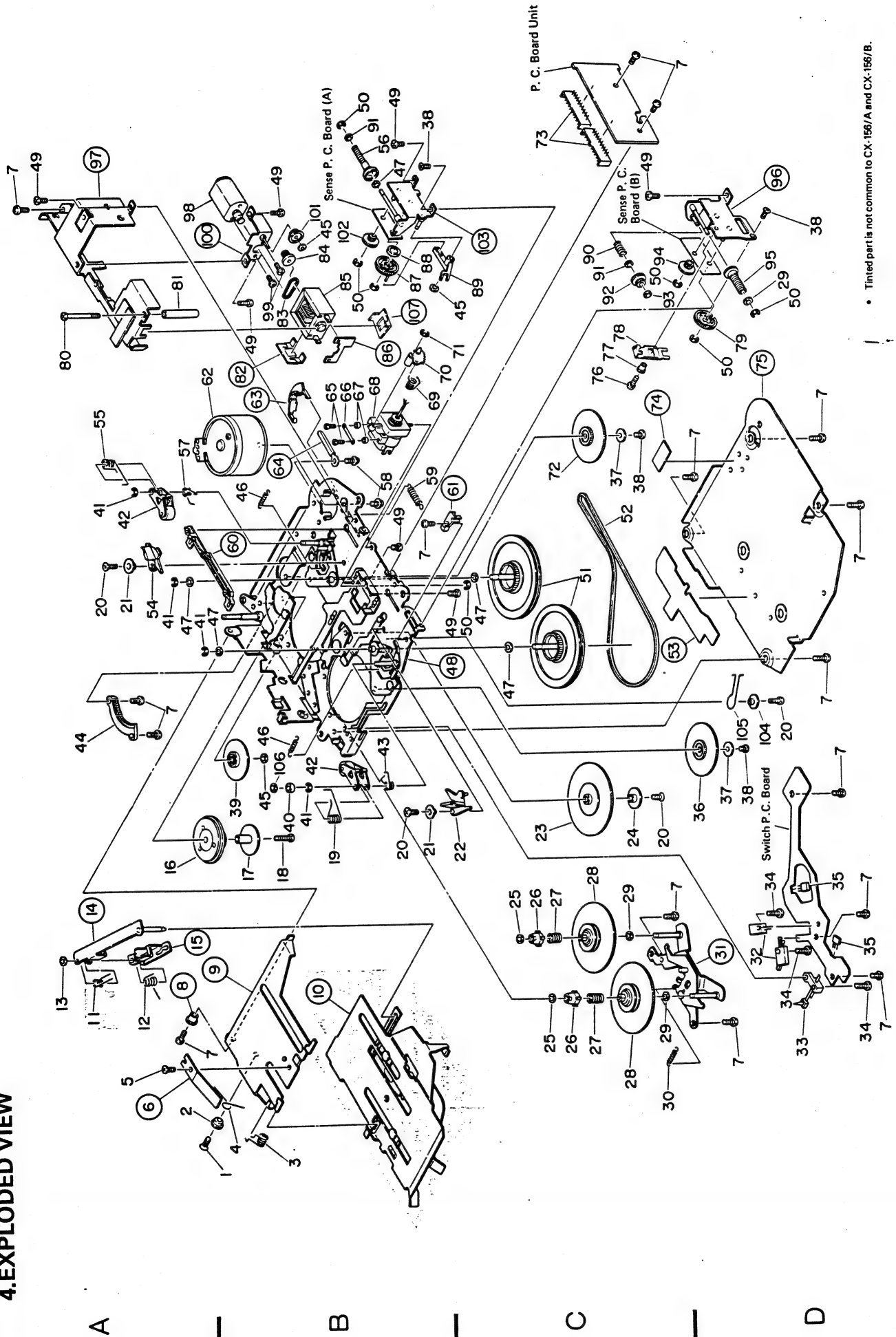


Fig. 21

• Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1		Case		51		Holder Unit
	2	BMZ26P050FMC	Screw		52	CNS1344	Escutcheon
⊙	3	CXK1635	Cassette Mechanism Assy		53	BMZ30P060FMC	Screw
	4		Cushion		54		Bracket
★	5	CAC1478	Button	★★	55	CWW1090	IC
	6	CAC1497	Button		56		Plug
★	7		Cushion		57		Plug
★	8	CAC1498	Button		58		Plug
★	9	CAC1444	Button(1)		59		Connector
★	10	CAC1445	Button(2)		60	CWW1033	Pre Amp Unit
	11	CAC1446	Button(3)		61		Bracket
★	12	CAC1447	Button(4)	⊙	62	CWS1096	Grille Unit
★	13	CAC1448	Button(5)		63		Holder
★	14	CAC1449	Button(6)	★★	64	CEL1037	Lamp
★	15	CAC1483	Button(RESET)		65		Lens
	16	CBH1129	Spring		66		Plate
	17	CAT1099	Door		67	CWW1118	LCD
★	18	CAC1514	Button	⊙	68	CWA1014	AM Unit
★	19	CAC1515	Button		69		Cushion
	20		Cushion		70		Holder
	21	CXA1820	Grille Assy(SDK/WG)		71		Connector
	22	CWE1077	FM Unit(SDK/WG)		72	CNS1343	Escutcheon
⊙	23	CWB1022	FM Front End		73	CBA1074	Screw
	24		Insulator		74	CNC1379	Handle
	25		Holder		75		
	26		Connector(10P) (SDK/WG)		76		Holder
	27		Connector(4P) (B/EW)		77	CDE1753	Cord Assy
	28		Insulator		78		Holder Unit
	29		Plug(10P) (SDK/WG)		79	CNV1468	Cap
	30		Plug(4P) (B/EW)		80	CNS1374	Cover
	31	CKS1255	Connector		81	CNV1455	Cap
	32		Plug	⊙	82	CWG1012	Audio Unit
	33	CKS1264	Connector		83		Plug
⊙	34	CWM1475	Control Unit(SDK/WG)		84		Plug
	35	CWM1474	Control Unit(B/EW)		85		Plug
	36		Cushion		86		Insulator
	37	CNP1511	P.C.Board		87		Chassis Unit
	38	CNP1512	P.C.Board	★★	88	ANG540	IC
	39	CNV-724	Bush		89		Connector
	40	BPZ20P060FMC	Screw		90	CDE1608	Cord Assy
★★	41	CEL-147	Lamp		91	BPZ26P080FMC	Screw
	42		Lens		92	CBA1073	Screw
★	43	CAC1516	Button	★★	93	CDE1810	Cord Assy
	44		Cushion		94	CNB1152	Box
★	45	CAC1517	Button		95	CDE1877	Cord Assy
★★	46	2SB945	Transistor		96		Holder
	47		Cushion		97	CSN-078	Switch
★	48	CAC1537	Button(A)		98		Connector
★	49	CAC1538	Button(B)		99	CBA-172	Screw
★	50	CAC1539	Button(C)				

11. ELECTRICAL PARTS LIST

NOTE:

- For your parts Stock Control, the fast moving items are indicated with the marks ** and *.
- ** : GENERALLY MOVES FASTER THAN *.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/8S□□□J, RS1/10S□□□J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Unit Number :
Unit Name : AM Unit

MISCELLANEOUS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
** IC	201				PA4010
** Q	201				2SK435
** Q	202				2SC2458
** Q	203 204 205				DTC124ES
*	D 201 202 204 205				1SS133
*	D 203	Variable Capacitance Diode			SVC203
L	201	Ferri-Inductor			CTF1026
L	202	Ferri-Inductor			LAU220K
L	203	Ferri-Inductor			LAU470K
L	204	Ferri-Inductor			LAU4R7K
T	201	Coil			CTB1019
T	202	Coil			CTB1004
T	203	Coil			CTB1006
					(CTB1017)
T	204	Coil			CTE1006
					(CTE1013)
T	205	Coil			CTE1007
T	206	Coil			(CTE1014)
					CTE1008
					(CTE1015)
CF	201	Filter			CTF1027
					(CTF1041)
CF	202	Filter			CTF-100
X	201	Xtal Resonator			CSS1014
** VR	201	Semi-fixed 4.7kΩ(B)			CCP-243

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	201				RS1/10S220J
R	202				RS1/10S681J
R	203 206				RS1/10S222J
R	204				RS1/10S473J
R	205				RS1/10S470J
R	207				RS1/10S822J
R	208				RS1/10S103J
R	209				RD1/4PS470JL
R	210				RS1/10S682J
R	211				RD1/4PS103JL
R	212				RD1/4PS223JL

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
C	201 209 223 228				CKSQVB103K50
C	202 212 214				CKSQVB332K50
C	203 215 216 219 226				CKSQVF473Z50
C	204 208 210				CKSQVB223K50
C	205				CCSQCH220J50
C	206 207				CCSQCH820J50
C	211				CEA010M50LS2
C	213				CCSQCH220J50
C	218				CEA2R2M50NPLL
C	220				CCSQCH430J50
C	221 231				CCSQCH100D50
C	222				CSZA010K25
C	224				CEA470M16LS
C	225				CKSQVB333K25
C	227				CEA4R7M35LS
C	229				CEA470M16LS
C	230				CEA220M6R3LL
C	232				CCPSL220J50L

Unit Number :
Unit Name : FM Unit(KEX-M700SDK/WG)

MISCELLANEOUS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
** IC	51				LA11408
** IC	101				KHA115
** IC	151				MX3S400
** IC	801				KHA142
** Q	1			Chip Transistor	2SA1162
					(2SA1179)
** Q	2			Chip Transistor	DTC124EK
** Q	51			Chip Transistor	2SC2712
					(2SD601)
** Q	71				2SJ105
*	D 151			Chip Diode	MA151WA
L	1 51			Inductor	LAU150K
T	51			Coil	CTC1029
CF	51 52			Ceramic Filter	CTF-182
X	801			Ceramic Resonator	CSS1019
** VR	1			Semi-fixed 10kΩ(B)	CCP-322
** VR	101 152			Semi-fixed 15kΩ(B)	CCP-323
** VR	151			Semi-fixed 150kΩ(B)	CCP-329
				Front End Unit	CW81022

Mark	Circuit Symbol & No.	Part Name	Part No.	Mark	Circuit Symbol & No.	Part Name	Part No.
R	502 532 759 760 765		RS1/10S473J	C	506		CCSQCH120J50
R	503 518		RS1/8S153J	C	507		CCSQCH150J50
R	504 507 727 728 729 730		RS1/8S102J	C	508 511 516 525		CKSYF473Z50
R	505 510 653 655 658 665 675		RS1/8S472J	C	509 510 514 660 669 671 672 675 801 802		CEA470M16LS
R	506		RS1/8S152J	C	512		CEA010M50LS2
R	508 509 516 529 530 534 719 720		RS1/8S222J	C	513		CEA101M10L2
R	511		RS1/8S471J	C	515		CEA100M25LS
R	512		RD1/4PS223JL	C	517 518		CEA4R7M35LS
R	513 538 660 661 663 666 668		RD1/4PS472JL	C	521 716		CKSQYB103K50
R	514 769 772 773 774 775 776 777		RS1/10S104J	C	522		CCSSL101J50
R	515 701 702 703 704 705 706 707 735		RD1/4PS222JL	C	526		CCSQSL561J50
R	517 527 528 537		RS1/8S104J	C	651		CEA332M16L2
R	519 533 770		RS1/8S393J	C	654 655 657 659 661 663 668 670 673 701		CKSYB473K50
R	523 524 525 526		RD1/4PS102JL	C	656		CQEA104J50
R	531		RS1/10S103J	C	662 803	470 μ F/16V	CCH-114
R	535		RD1/4PS103JL	C	664		CEA101M16L2
R	536		RD1/4PS473JL	C	665 666 667		CEA470M16L2
R	540		RS1/10S223J	C	676 706		CKSYB473K50
R	652		RS1/10S472J	C	677		CEA470M16LS
R	654 659 667 676		RD1/2PS102JL	C	679 680 683		CSYA010M160S
R	656		RNIP330JL	C	682		CEA471M10L2
R	657 678 723 744		RD1/4PS102JL	C	702 718		CCSQCH330J50
R	662 670 742 803		RD1/4PS473JL	C	707		CCSCH330J50
R	664		RNIP331JL	C	708		CCSCH090D50
R	669 674 756		RD1/4PS471JL	C	717		CEA2R2M50LS2
R	672		RD1/4PS391JL	Unit Number :			
R	673		RS1/8S821J	Unit Name :	Control Unit(KEX-M700B/EW)		
R	680		RD1/4PS100JL				
R	682 749 753 754 755		RD1/4PS222JL	MISCELLANEOUS			
R	683		RD1/4PM103J				

R 684 771
R 685 761 762 764 789
R 708 709 710 711 724 725 726 746 747 748
R 712 713 714 715
R 716 718 757 758

R 717
R 732 733 734 751 752
R 736 737 738
R 739 740
R 766

R 768
R 782 783
R 784 801 802
R 785
R 786

R 787
R 790

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
C	251 252		CKSYB391K50
C	253 254		CEANL4R7M35LL
C	255 256 652 653 674 710 711		CEA220M16LS
C	257		CEA221M10L2
C	301 302		CEA4R7M35L2
C	303 304 305		CEA101M10L2
C	501 503 519 520 523 714 715		CKSYB103K50
C	502	4.7 μ F/16V	CCH1005
C	504 705		CEA47M50LS2
C	505 658 681		CKSYF224Z25

Mark	Circuit Symbol & No.	Part Name	Part No.
**	IC 251		CWW1033
**	IC 301		BH-2405
**	IC 501		TC4069UBP
**	IC 502		CX-7925B
**	IC 503		AN6540
**	IC 701		PD4128B
**	IC 702		S-8053ANO
**	IC 703		PD4129B
**	IC 704		PDG011
**	IC 705		TC4581F
**	IC 801		CWW1090
**	Q 351 352 511 512 666		DTC114ES
**	Q 501 702		DTC114TS
**	Q 502 509 510 513 514 653 655 657 661 664		(UN4215)
**			2SC2458
**			(2SC1740S)
**	Q 503		2SK330
**	Q 504 508		DTC124ES
**	Q 505 507		(UN4212)
**	Q 651		2SA1150
**	Q 652 656 660 669		2SD1859
**	Q 654 662 668		2SB1243
**	Q 658 701		2SD1859
**	Q 665		2SC2458
**			(2SC1740S)
**			UN4122

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.	Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
** Q	667				2SD1919	R	517	537			RS1/8S104J
** Q	670				DTC143ES	R	519	770			RS1/8S393J
** Q	671				2SB945	R	523	524			RD1/4PS102JL
** Q	703				DTA114ES	R	531				RS1/10S103J
* D	251	501 503 504 505 506 507 508 663 665			1SS133	R	535				RD1/4PS103JL
					(1SS176)						
* D	502				RD2R7ESB1	R	536				RD1/4PS473JL
* D	651				ERC05-10B	R	652				RS1/10S472J
					(ERC05-06B)	R	654	659 667 676			RD1/2PS102JL
* D	652	654			ERA15-02VH	R	656				RN1P330JL
* D	653	664			RD5R6JSB3	R	657	678 723 744			RD1/4PS102JL
						R	662	670 742 803			RD1/4PS473JL
* D	655				ERA15-10VH	R	664				RN1P331JL
* D	656				RD9R1JSB3	R	669	674 756			RD1/4PS471JL
* D	657				RD7R5JSB2	R	672				RD1/4PS391JL
* D	658				RD7R5JSB3	R	673				RS1/8S821J
* D	659				RD11JSB2						
						R	680				RD1/4PS100JL
* D	661				RD9R1JSB1	R	682	749 753 754 755			RD1/4PS222JL
* D	662	666			RD5R1JSB2	R	683				RD1/4PM103J
* D	667	669 671 673 675 677 678 703 704 705			1SS133	R	684	771			RD1/4PS104JL
					(1SS176)	R	685	761 762 764 789			RS1/8S473J
* D	706	707 708 710 711 713 714			1SS133						
					(1SS176)	R	708	709 710 711 724 725 726 746 747 748			RD1/4PS222JL
L	351	352		Coil	CTF1019	R	712	713 714 715			RS1/8S823J
L	501	654		Ferri-Inductor	CTF-157	R	716	718 757 758			RS1/8S681J
L	502			Ferri-Inductor	LAU220K	R	717				RS1/8S682J
L	652			Ferri-Inductor	LAU150K	R	732	733 734 751 752			RD1/4PS681JL
L	653				CCG-081	R	736	737 738			RS1/10S222J
						R	739	740			RD1/4PS682JL
L	655			Ferri-Inductor	LAU101K	R	766				RS1/8S474J
IB	501				CWW1133	R	768				RS1/10S682J
IB	652				CWW1128	R	782	783			RS1/10S102J
IB	701				CWW1152						
IB	801				CWW1048	R	784	801 802			RS1/10S473J
X	501			Xtal Resonator	CSS1011	R	785				RS1/10S102J
X	502			Capacitor with Discharge Gap	CCX-006	R	786				RD1/4PS124JL
X	701			Buzzer	CPV1006	R	787				RS1/10S105J
X	702			Xtal Resonator	CSS1029	R	788				RS1/10S0R0J
X	703			Xtal Resonator	CSS1023						
						R	790				RD1/4PS473JL
** VR	251	252			CCP-371	CAPACITORS					

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.	Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	251	252 401 402 520 521 522 721			RS1/8S473J	C	251	252			CKSYB391K50
R	253	254			RS1/8S271J	C	253	254			CEANL4R7M35LL
R	351	352			RS1/8S123J	C	255	256 652 653 674 710 711			CEA220M16LS
R	353	354			RS1/8S103J	C	257				CEA221M10L2
R	501	763			RS1/10S474J	C	301	302			CEA4R7M35L2
						C	303	304 305			CEA101M10L2
R	502	759 760 765			RS1/10S473J	C	501	503 519 520 714 715			CKSYB103K50
R	503	518			RS1/8S153J	C	502			4.7 μ F/16V	CCH1005
R	504	507 727 728 729 730			RS1/8S102J	C	504	705			CEAR47M50LS2
R	505	510 653 655 658 665 675			RS1/8S472J	C	505	658 681			CKSYF224Z25
R	506				RS1/8S152J	C	506				CCSQCH120J50
						C	507				CCSQCH150J50
R	508	509 516 534 719 720			RS1/8S222J	C	508	511 516 525			CKSYF473Z50
R	512				RD1/4PS223JL	C	512				CEA010M50LS2
R	513	538 660 661 663 666 668			RD1/4PS472JL	C	513				CEA101M10L2
R	514	769 772 773 774 775 776 777			RS1/10S104J						
R	515	701 702 703 704 705 706 707 735			RD1/4PS222JL	C	522				CCSSL101J50
						C	526				CCSQL561J50
						C	651				CEA332M16L2
						C	654	655 657 659 661 663 668 670 673 701			CKSYB473K50
						C	656				CQEA104J50

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	2			RS1/8S223J	
R	4			RS1/8S682J	
R	5			RS1/8S471J	
R	6			RS1/10S681J	
R	7			RS1/10S223J	
R	51			RS1/10S0R0J	
R	52			RS1/10S331J	
R	53	57 802		RS1/10S473J	
R	54			RS1/10S683J	
R	55	60		RS1/10S153J	
R	56			RS1/10S123J	
R	58			RS1/10S682J	
R	59			RD1/4PS153JL	
R	61	62		RS1/10S472J	
R	71			RS1/10S474J	
R	101			RS1/10S332J	
R	102			RS1/8S183J	
R	103			RS1/8S562J	
R	801			RS1/10S222J	

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
C	1			CKSQVB102K50	
C	2	802		CKSQVB103K50	
C	4	51 54		CKSYF473Z50	
C	52	53 59		CKSQVF473Z50	
C	55	62		CCSQSL330J50	
C	56	63		CEAR47M50LS2	
C	57			CKSQVF104Z25	
C	58			CEA010M50LS2	
C	60			CCSQSL101J50	
C	61			CEA4R7M16NPLL	
C	70			CCSQCH200J50	
C	101	105 161 803		CEA470M16LS	
C	152			CKSQVB332K50	
C	154			CKSQVB153K25	
C	159	160		CKSYB123K50	
C	801			CQMA683J50	
C	804			CEA4R7M35LS	
C	805			CEA220M16LS	
C	806			CSZAR33M35	

Unit Number :

Unit Name : FM Unit(KEX-M700B/EW)

MISCELLANEOUS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
** IC	51			LA1140B	
** IC	101			LA2110	
** IC	151			LA3430P	
** Q	1			2SA1162	
				(2SA1179)	
** Q	2			DTC124EK	
** Q	51			2SC2712	
				(2SD601)	
** Q	71			2SJ106	
* D	151			1S2473VH	

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
L	1	51		Inductor	LAU150K
T	51			Coil	CTC1029
CF	51	52		Ceramic Filter	CTF-182
CR	101				CWW-107
X	151			Ceramic Resonator	CSS1028
					(CSS1022)
** VR	1	101		Semi-fixed 10kΩ(B)	CCP-322
** VR	151			Semi-fixed 150kΩ(B)	CCP-329
** VR	152			Semi-fixed 15kΩ(B)	CCP-323
				Front End Unit	CWB1022

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	2	7 152		RS1/10S223J	
R	4	58 104		RS1/10S682J	
R	5			RS1/10S471J	
R	6			RS1/8S681J	
R	21	22 51		RS1/8S0R0J	
R	52			RS1/10S331J	
R	53	57		RS1/10S473J	
R	54			RS1/10S683J	
R	55	60		RS1/10S153J	
R	56			RS1/8S123J	
R	59			RD1/4PS153JL	
R	61	62		RS1/10S472J	
R	71			RS1/10S474J	
R	101			RS1/10S332J	
R	102			RS1/10S392J	
R	103			RS1/10S183J	
R	151			RS1/10S222J	
R	153			RS1/8S472J	
R	156	157		RS1/10S332J	
R	158			RS1/10S334J	

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
C	1			CKSQVB102K50	
C	2	101 102		CKSQVB103K25	
C	4	51 52 53 54 59		CKSQVF473Z50	
C	55	62		CCSQSL330J50	
C	56	63		CEAR47M50LS2	
C	57			CKSQVF104Z25	
C	58	156		CEA010M50LS2	
C	60			CCSQSL101J50	
C	61			CEA4R7M16NPL	
C	70			CCSQCH200J50	
C	103	105 161		CEA470M16LS	
C	104			CKSQVB182K50	
C	151			CKSYF473Z50	
C	152			CKSQVB332K50	
C	153			CKSQVB223K25	
C	154			CKSQVB153K25	
C	155			CEA3R3M50LS	
C	157			CSZAR22M35	
C	158			CCSQSL681J50	
C	159	160		CKSYB183K25	

MISCELLANEOUS

```

** 1C 602                                μ PC4570G
** 1C 603                                KHA215
** 1C 851 852                            μ PC4570HA
** Q 601 602                            2SC2872S
** Q 851 852 853 854                    2SD1468S

** Q 855                                2SA1048
                                           (2SA933S)
* D 601 602                            RD5R6JSB2
* D 851 852 853 854                    1SS133
  1B 851 852                            CWW1096

```

RESISTORS

[illegible]

CAPACITORS

C	601	602	603	604	607	608	851	852	855	856	CEA4R7M35LS
C	613	615									CEAR22M50LS2
C	614	616									CEA471M10L2
C	853	854	857								CEA101M10L2
C	858										CEA101M10LL
C	859	860									CQE4473J50
C	861	862	863	864	865	866	867	868			CCSQCH391J50

MISCELLANEOUS

```

** IC 251 CWW1033
** IC 301 BH-2405
** IC 501 TC4069UBP
** IC 502 CX-7925B
** IC 503 AN6540

** IC 504 CWW1091
** IC 701 PD4128B
** IC 702 S-8053ANO
** IC 703 PD4129B
** IC 704 PDG011

```

```

** IC 705 TC4S81F
** IC 801 CW1090
** Q 351 352 511 512 666 DTC114ES
** Q 501 702 DTC114TS
                (UN4215)

```

```

** Q 502 509 510 513 514 653 655 657 661 664      2SC2458
                                                    (2SC1740S)
** Q 503      2SK330
** Q 504 508      DTC124ES
                                                    (UN4212)

** Q 505 507      2SA1150
** Q 506 654 662 668      2SD1859
** Q 515 516      Chip Transistor      2SD1757K
** Q 517      Chip Transistor      2SD601
** Q 651      2SD1859

** Q 652 656 660 669      2SB1243
** Q 658 701      2SC2458
                                                    (2SC1740S)
** Q 665      UN4122
** Q 667      2SD1919

```

```

** Q 670 DTC143ES
** Q 671 2S8945
** Q 703 DTA114ES
* D 251 501 503 504 505 506 507 508 663 1SS133
(1SS176)

* D 502 RD2R7ESB1
* D 651 ERC05-10B
(ERC05-06B)
* D 652 654 ERA15-02VH
* D 653 664 RD5R6JSB3

* D 655 ERA15-10VH
* D 656 RD9R1JSB3
* D 657 RD7R5JSB2
* D 658 RD7R5JSB3
* D 659 RD11JSB2

```

* D 661		RD9R1JSB1
* D 662 666		RD5R1JSB2
* D 665 667 669 671 673 675 677 678 702 704		1SS133 (1SS176)
* D 705 706 707 708 710 711 713 714		1SS133 (1SS176)
L 351 352	Coil	CTF1019
L 501 654	Ferri-Inductor	CTF-157
L 502	Ferri-Inductor	LAU220K
L 652	Ferri-Inductor	LAU150K
L 653		CCG-081

L 655	Ferri-Inductor	LAU101K
IB 501		CWW1133
IB 652		CWW1128
IB 701		CWW1152
IB 801		CWW1048
X 501	Xtal Resonator	CSS1011
X 502	Capacitor with Discharge Gap	CCX-006
X 701	Buzzer	CPV1006
X 702	Xtal Resonator	CSS1029
X 703	Xtal Resonator	CSS1023
** VR 251 252		CCP-371

RESISTORS

```

R 251 252 401 402 520 521 522 721      RS1/8S473J
R 253 254                                RS1/8S271J
R 351 352                                RS1/8S123J
R 353 354                                RS1/8S103J
R 501 763                                RS1/10S474J

```


NOTE:

- For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.
- ★ ★: GENERALLY MOVES FASTER THAN ★.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1.	HBA-193	Screw M1.4×3.5		53.		Insulator
	2.	CLB-691	Collar		54.	CNW-931	Arm
	3.	CBH-837	Spring		55.	CBH-831	Spring
	4.	CBH-867	Spring		56.	CNW-956	Gear
	5.	HBA-147	Screw M1.4×1.4		57.	CBH-833	Spring
	6.		Spring		58.	PMS26P030FMC	Screw
	7.	BMZ20P040FMC	Screw		59.	CBH-830	Spring
	8.		Bush		60.		Lever
	9.		Arm		61.		Spacer
	10.		Holder Unit (CX-156/A)	★ ★	62.	CXM-161	Motor (Capstan)
			Holder Unit (CX-156/B)		63.		Clamper
	11.	CBH-836	Spring (CX-156/A)		64.		Clamper
		CBH-887	Spring (CX-156/B)		65.	CBA-173	Screw M1.4×8
	12.	CBH-886	Spring		66.	CBE-114	Spring
	13.	CBF-046	Washer		67.	CNY-134	Azimuth Rubber
	14.		Arm Unit	★ ★	68.	CXD-758	Head Unit
	15.		Arm		69.	CBH-829	Spring
	16.	CXD-388	Gear Unit		70.	CNW-939	Gear
	17.	CLB-617	Collar		71.	YE15FUC	Washer
	18.	CBA-166	Screw M1.7×8		72.	CNW-943	Gear
	19.	CBH-832	Spring		73.	CKS-534	Plug
	20.	HBA-310	Screw M2×3.5		74.		Insulator
	21.	CLB-612	Collar		75.		Cover
	22.	CNW-930	Arm		76.	HBA-158	Screw M1.4×5
	23.	CNW-944	Gear		77.	CLB-750	Collar
	24.	CLB-616	Collar		78.	CNH-004	Arm
	25.	CBF-135	Washer		79.	CNW-953	Gear
	26.	CNW-932	Collar		80.	CBA-165	Screw M2
	27.	CBH-827	Spring		81.	CLB-749	Spacer
★ ★	28.	CXD-384	Reel Unit		82.		Spacer
	29.	CBF-088	Washer	★ ★	83.	CNT-114	Belt
	30.	CBH-868	Spring		84.	CNW-941	Gear
	31.		Bracket Unit	★ ★	85.	CXM-351	Motor (Gear Position)
★ ★	32.	CSN-091	Switch (70μs, CST IN)		86.		P.C. Board
★ ★	33.	CSN-089	Switch (CST SET)		87.	CNW-952	Gear
	34.	CBA-172	Screw M1.7×5.5		88.	CNN-481	Spacer
★	35.	SDME106A	Magnetic Resistive Device		89.	CNW-958	Arm
	36.	CNW-943	Gear		90.	CBH-866	Spring
	37.	CLB-615	Collar		91.	HBF-116	Washer
	38.	HBA-209	Screw M2×2		92.	CNW-954	Gear
	39.	CNW-950	Gear		93.	CBF-135	Washer
	40.	CLB-690	Roller		94.	CNY-077	Gear
	41.	EBG-001	Washer		95.	CNY-148	Gear
★ ★	42.	CXD-387	Pinch Roller Unit		96.		Holder Unit
	43.	CBH-834	Spring		97.		Guide
	44.	CNW-951	Gear	★ ★	98.	CXM-452	Motor (Head Position)
	45.	CBF-126	Washer		99.	HBA-244	Screw M1.4×1.6
	46.	CBH-835	Spring		100.		Bracket Unit
	47.	HBF-179	Washer		101.	CNY-075	Pulley
	48.		Chassis Unit (CX-156/A)		102.	CNW-955	Gear
			Chassis Unit (CX-156/B)		103.		Holder Unit
	49.	HBA-175	Screw M2×2.5		104.	CLB-760	Collar
	50.	YE12FUC	Washer		105.	CBH-893	Spring
	51.	CNW-942	Flywheel		106.	HBF-180	Washer
★ ★	52.	CNT-111	Belt		107.		Cover

5. CONNECTION DIAGRAM

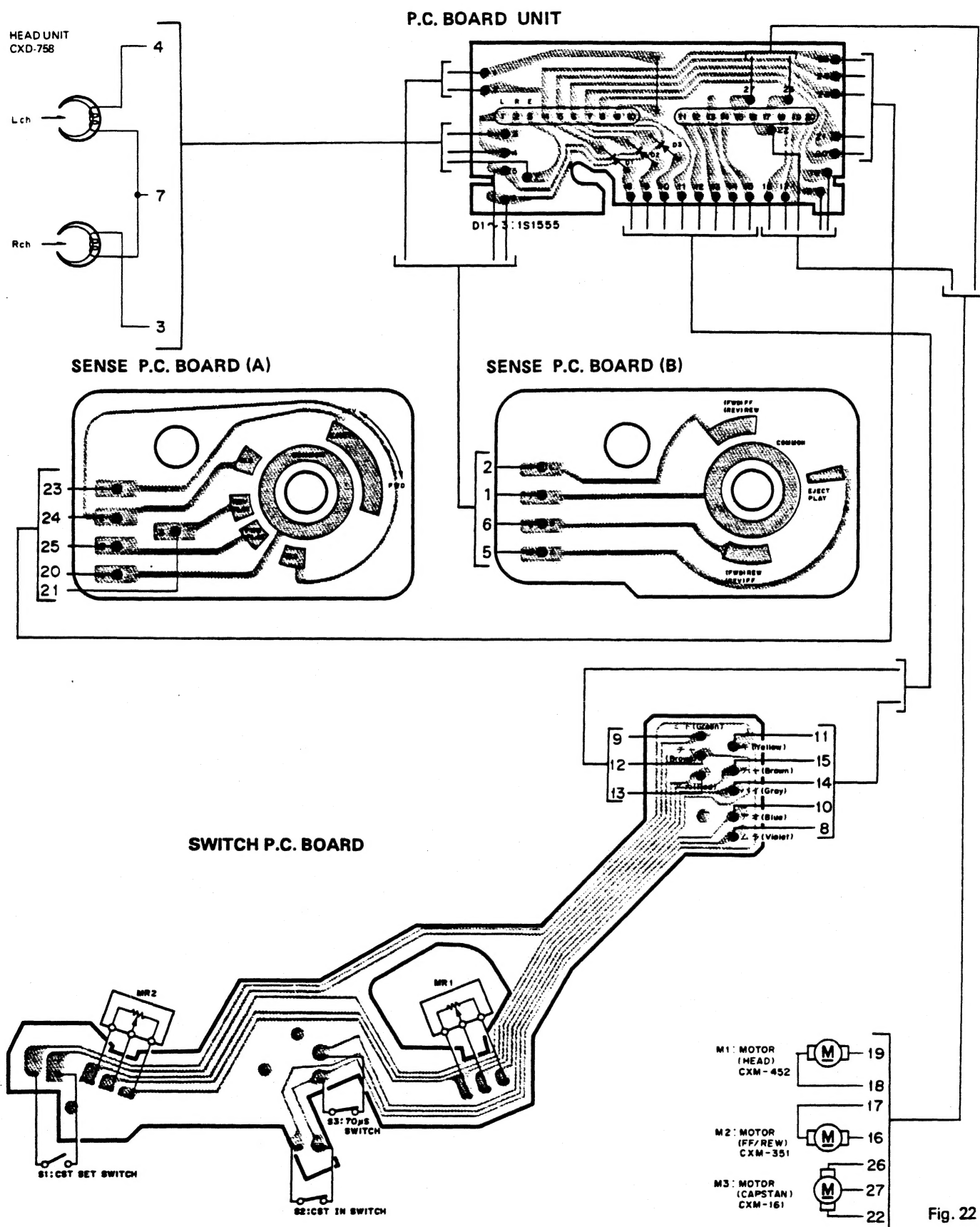
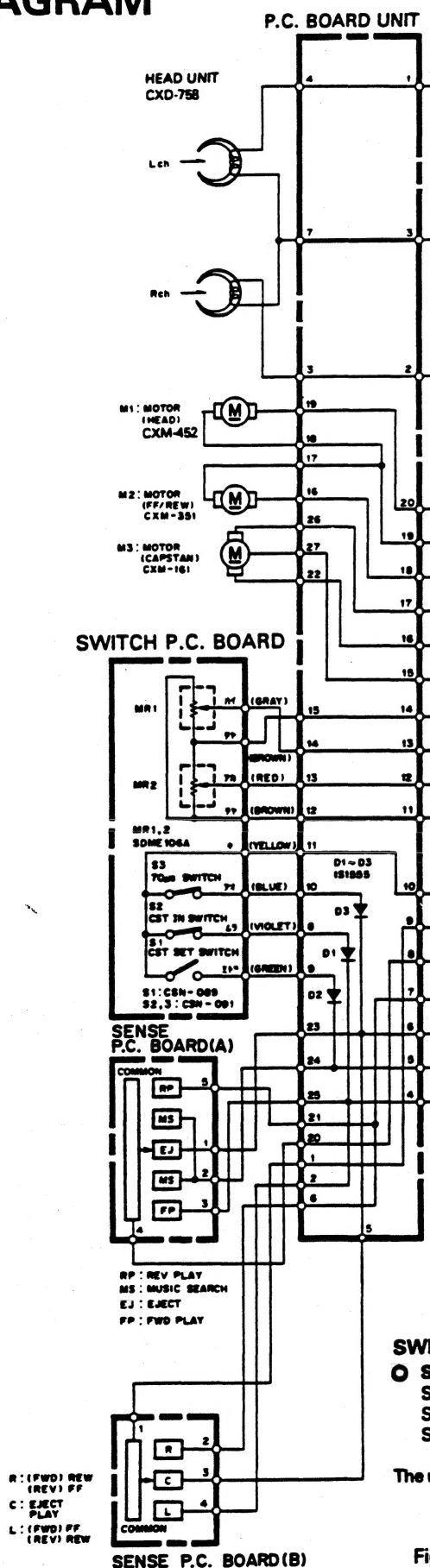


Fig. 22

6. SCHEMATIC CIRCUIT DIAGRAM



SWITCHES

○ SWITCH P.C. BOARD

- S1: CST SET SWITCH..... ON—OFF
- S2: CST IN SWITCH..... ON—OFF
- S3: 70μs SWITCH..... ON (120μs)—OFF (70μs)

The underlined indicates the switch position.

7. ELECTRICAL PARTS LIST

Switch P.C. Board

Mark	Symbol & Description	Part No.
★ ★	S1 Switch (CST SET)	CSN-089
★ ★	S2, S3 Switch (CST IN, 70μs)	CSN-091
★	MR1, MR2 Magnetic Resistive Device	SDME106A

P.C. Board Unit

Mark	Symbol & Description	Part No.
★	D1—D3	1S1555

Miscellaneous Parts List

Mark	Symbol & Description	Part No.
★ ★	Head Unit	CXD-758
★ ★	M1 Motor (Head)	CXM-452
★ ★	M2 Motor (Gear)	CXM-351
★ ★	M3 Motor (Capstan)	CXM-161

Fig. 23